Catalog Number DOC026.53.00815

Flo-Center™ Software

USER MANUAL

February 2009, Edition 2

© HACH Company, 2007, 2009. All rights reserved. Printed in the U.S.A.

Section 1 Specifications ... 3
Section 2 General information ... 5
2.1 General product information ... 5
2.2 Physical connections ... 5
2.3 Data management ... 5
2.4 Analysis and reporting ... 6
2.5 Flo-Center view options ... 6
Section 3 Logger connections ... 13
3.1 Connect to a logger ... 13
3.1.1 Quick connect (RS232) ... 13
3.1.2 RS232 connection to logger ... 14
3.1.3 Modem connection to logger ... 15
Section 4 Remote programming ... 19
4.1 Real-time remote programming ... 19
4.2 Fixed operations remote programming ... 21
Section 5 Data management ... 27
5.1 Manage site file data ... 27
5.1.1 Site file explorer ... 27
5.2 Manage database sites ... 29
5.2.1 Flo-Center explorer ... 30
5.2.2 Edit database site data ... 35
5.2.3 Generate graphs ... 36
5.2.4 Generate reports ... 38
5.3 Import site data ... 41
5.4 Export site data ... 44
Section 6 Custom graphs and reports ... 49
6.1 Graph Template Manager ... 49
6.2 Report Template Manager ... 51
6.3 Sample history ... 53
Section 7 Database tools and maintenance ... 55
7.1 Database archive and restore ... 55
7.2 Database backup and restore ... 56
7.3 Database utility ... 57
7.4 Database maintenance ... 59
7.5 Import a Vision database ... 60
7.6 Flow calculator ... 61
7.7 Automatic data collection ... 62
7.7.1 Scheduled report or graph generation ... 64
7.8 Advanced options ... 67
Section 8 Getting started ... 69
Section 9 Contact information ... 71
Section 10 Limited Warranty ... 73
Appendix A Glossary ... 75
Appendix B Flo-Center *.csv file format ... 81
Index ... 85

Section 1 Specifications

In this section

- Optimum system requirements
- Minimum system requirements
- Logger compatibility

Specifications are subject to change without notice.

Optimum system requirements	
Operating system	Microsoft Windows 2000, Windows XP, Windows Vista (home basic, home premium, business, ultimate editions)
Processor	1.00 GHz Pentium class or equivalent
Memory	512 MB
Disk space	100 MB[1]
Monitor	1280 x 800 pixels
Minimum system requirements[2]	
Operating system	Microsoft Windows 2000, Windows XP, Windows Vista (home basic, home premium, business, ultimate editions)
Processor	400 MHz Pentium III
Memory	128 MB
Disk space	100 MB[1]
Monitor	800 x 600 pixels
Logger compatibility	
Flow meters	Sigma 910
	Sigma 920
	Sigma 930
	Sigma 950
	Sigma 980
	Sigma 911
	Sigma 940
	Sigma Rain Reader
Samplers	Sigma 900 MAX
Data transfer units	Sigma DTU2
Data management software	InSight®—site and database files open in Flo-Center
	Vision®—database files open in Flo-Center

[1] Additional disk space is required for retrieved logger data and site files.

[2] While Flo-Center has been tested with minimum system requirements, performance is slow and some program features may not be accessible.

Section 2 General information

Product overview

- General product information
- Physical connections
- Data management
- Analysis and reporting
- Flo-Center view options

2.1 General product information

Flo-Center™ Software is a Microsoft® Windows®-based application that enables communication between Sigma devices with remote programming capability. With Flo-Center, data collected by Sigma devices can be configured, downloaded, organized and analyzed.

Other Flo-Center Software features include:

- The ability to create graphs and reports that combine and time-shift data from more than one site for analysis
- A scalable off-the-shelf Windows compatible database
- Enhanced data editing abilities
- Enhanced download scheduling abilities

2.2 Physical connections

Flo-Center has two options for communication with Sigma devices:

- RS232 connection to logger
- Modem connection to logger

2.3 Data management

Site data

Sites and site data can be organized into a multi-level hierarchy. Data is collected and stored either to a file or a database. Original data values are preserved while the user modifies versions of the data for analysis or reporting. Data integrity is preserved even if multiple users access the data simultaneously.

Remote programming

Remote programming templates are used to store a set of programmable settings. Settings are configured through the remote programming dialog and applied to a Sigma device or set of similar devices.

Remote sensor calibration

Sigma sensors connect directly to the flow meter or sampler. The sensor can be calibrated by communicating with the flow meter or sampler through the Flo-Center remote programming interface.

Data download

Logged channel data can be downloaded from the flow meter or sampler to Flo-Center and includes:

- Site location
- Settings summary
- Logged events
- Sample history
- Channel attributes
- Current status
- The remote programming template

The download can include all logged data or only data logged since the last download. Flo-Center stores the data in site files and in the database, if desired.

2.4 Analysis and reporting

Scheduled download and report generation

The Flo-Center application allows scheduled data downloads. Each site can be scheduled with multiple download times. Report generation can also be scheduled to run after successful data download.

Graphs and tabular reports

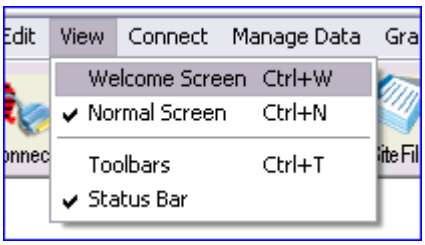
Graphs or tabular reports are used to publish, archive or export data to other analysis applications. Predefined graphs and report templates can be customized by the user.

2.5 Flo-Center view options

Flo-Center has two graphical interface views: Welcome screen and Normal screen. The Welcome view is the default option after initial installation, and offers a product overview for new users. Users with prior experience using InSight or Vision software may prefer to work with the Normal view.

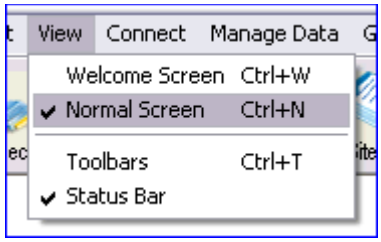
There is no functional difference between the views. Views are toggled from the View menu, by the status bar menu at the bottom of the screen (Welcome screen view or Normal screen view) or by keyboard shortcut.

View>Welcome Screen



View>Normal Screen

A check mark indicates the current view selection.



Keyboard shortcuts

- Welcome screen—**CTRL+W**
- Normal screen—**CTRL+N**

Welcome screen view

The Welcome screen view offers new users a more step-by-step approach to establishing communication with loggers, data management, analysis and reporting and database tools.

The Welcome default view does not show Toolbar buttons. Program options are accessible from the pull-down menus at the top of the screen or the navigation bar on the left side of the screen.

Figure 1 Welcome screen view

1	Menu options	**3**	Status bar—startup view display
2	Left navigation bar	**4**	Status bar—current database display

Product overview

An overview of Flo-Center is available through the Welcome screen view. The product overview offers topical help on the basic functionality of the software.

1. In the Welcome screen, click **PRODUCT OVERVIEW** on the left navigation bar.
2. In the Product Overview screen, click a topic of interest. The topic will open in a separate window.

Normal screen view

The Normal screen view allows more direct selection of specific tasks. Toolbar buttons are available by default in this view.

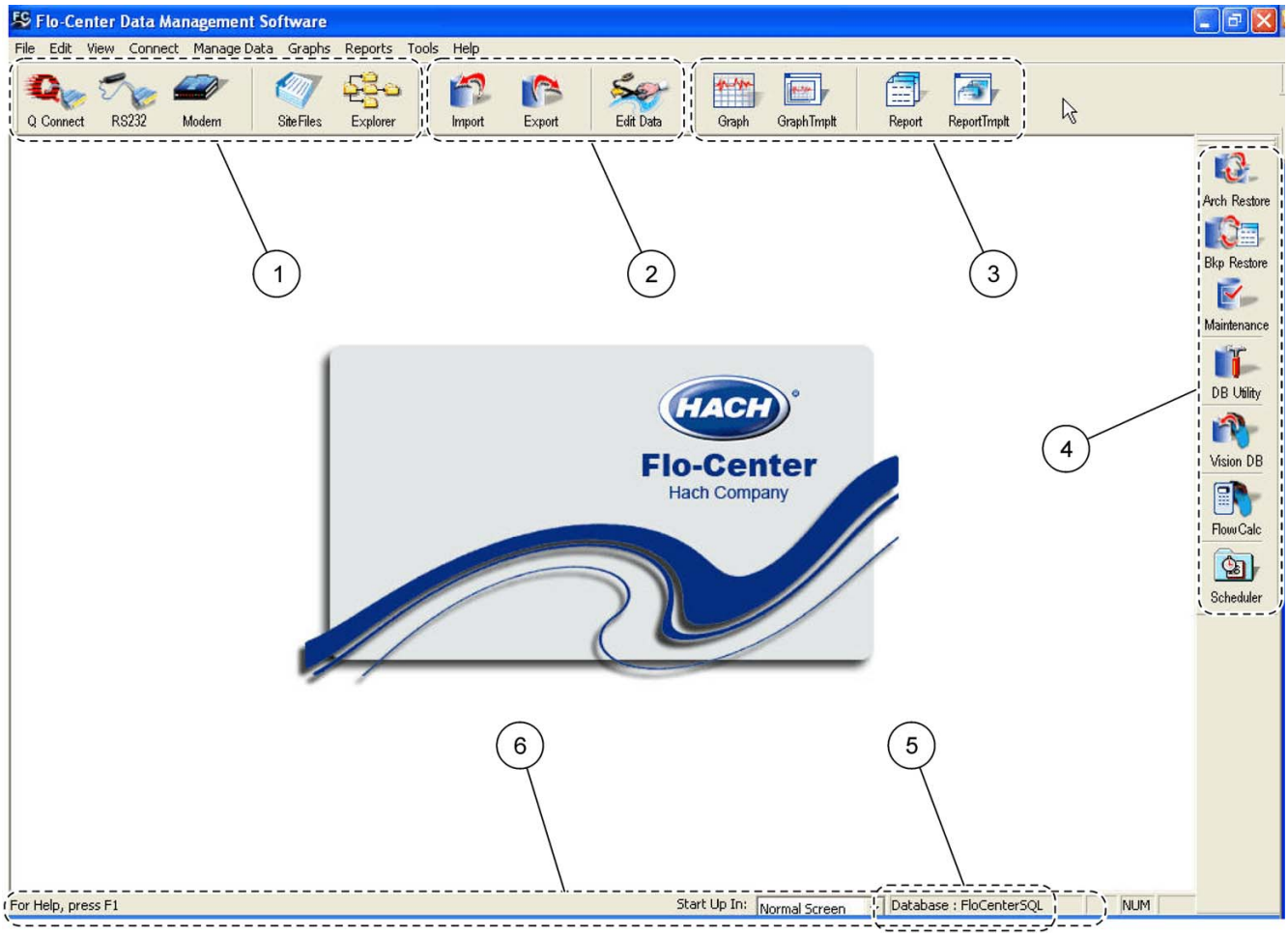


Figure 2 Normal screen view

1	Connect and manage data toolbar	**4**	Database tools and maintenance toolbar
2	Import, export and edit data toolbar	**5**	Status bar—current database display
3	Graphs and reports toolbar	**6**	Status bar—startup view display

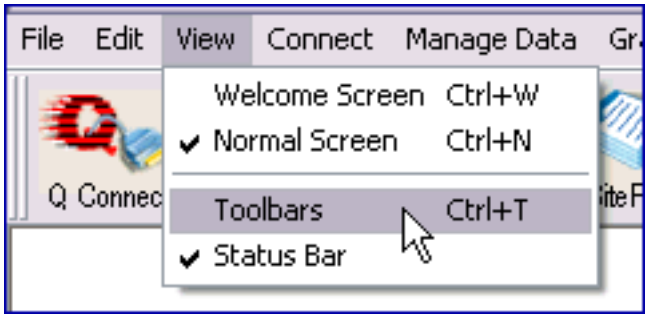
Toolbar buttons

Toolbar buttons can be turned on and off in Welcome view and Normal view using the Toolbar dialog. In addition to showing and hiding toolbars, the Toolbar dialog allows:

- Addition of new toolbars
- Customization of button appearance (tooltips, button size, border appearance)
- Reset to default settings

Show a toolbar

1. Open the Toolbar dialog using the View menu or the keyboard shortcut:
   - Select **VIEW>TOOLBARS**



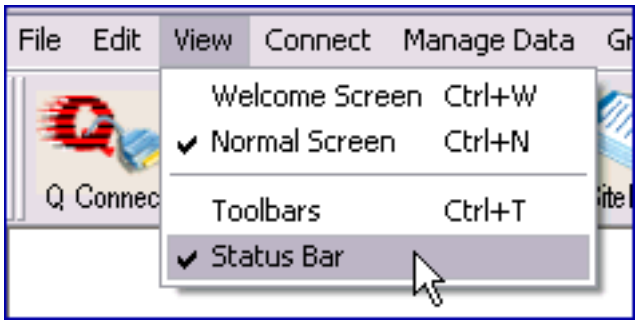
   - Use the keyboard shortcut—**CTRL+T**
2. Check a toolbar to select it. More than one toolbar can be selected.
3. Click **CLOSE**.

Hide a toolbar

1. Open the Toolbar dialog using the View menu or the keyboard shortcut:
   - Select **VIEW>TOOLBARS**
   - Use the keyboard shortcut—**CTRL+T**
2. Select the toolbars to hide by clearing the check box. More than one toolbar can be selected.
3. Click **CLOSE**.

Status bar

The status bar shows the start-up view (Welcome screen or Normal screen) and the database name. To show or hide the status bar, select View>Status bar.



The start-up view can be selected in each view from the Start Up In pull-down menu of the status bar. Changing the start-up view in the status bar will change the Flo-Center program view.

Print setup

To print from Flo-Center, select **FILE>PRINT SETUP**.

In the standard Windows Print Setup dialog, set the:

- Printer
- Paper size and source
- Orientation

Exit

To close Flo-Center, select **FILE>EXIT** or press **ALT+F4**.

Section 3 Logger connections

In this section

- Quick connect (RS232)
- RS232 connection to logger
- Modem connection to logger

3.1 Connect to a logger

There are three options for connection to a logger:

- Quick connect (RS232)—Connect to the logger with the most recent RS232 communication settings
- RS232 connection to logger—Establish or edit RS232 communication settings
- Modem connection to logger—Establish or edit modem communication settings

3.1.1 Quick connect (RS232)

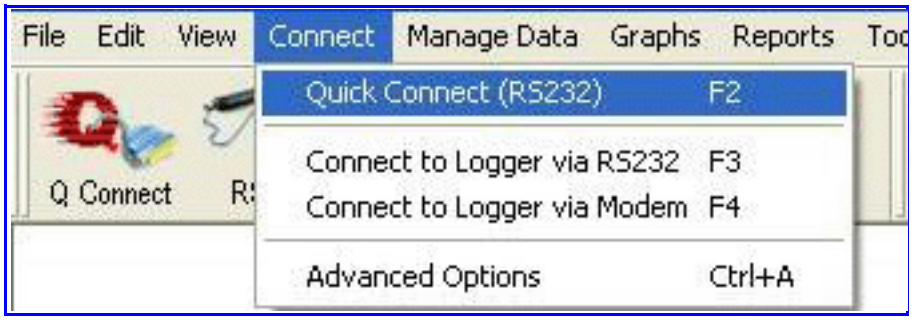
Open Quick Connect

From the Welcome screen left navigation bar

- Click **CONNECT TO LOGGER**, then click **QUICK CONNECT RS232**.

From the Connect menu

- Select **CONNECT>QUICK CONNECT (RS232)**.



From the toolbar

- Click **Q CONNECT**.

With the keyboard shortcut

- Press **F2**.

3.1.2 RS232 connection to logger

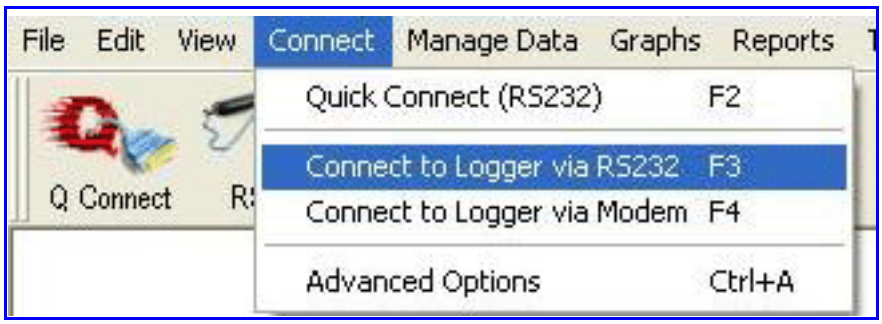
Open the RS232 Connect dialog

From the Welcome screen left navigation bar

- Click **CONNECT TO LOGGER**, then click **CONNECT TO LOGGER USING RS232**.

From the Connect menu

- Select **CONNECT>CONNECT TO LOGGER VIA RS232**.



From the toolbar

- Click **RS232**.

With the keyboard shortcut

- Press **F3**.

RS232 connection

1. Open the RS232 Connect dialog.
2. Configure the connection:
   - Select the logger type.
   - Select the port.
   - Select the Baud rate.
3. Click **OK**.

3.1.3 Modem connection to logger

Initial setup of a modem requires entry of area code, carrier code (if applicable) and numbers required to dial outside the system.

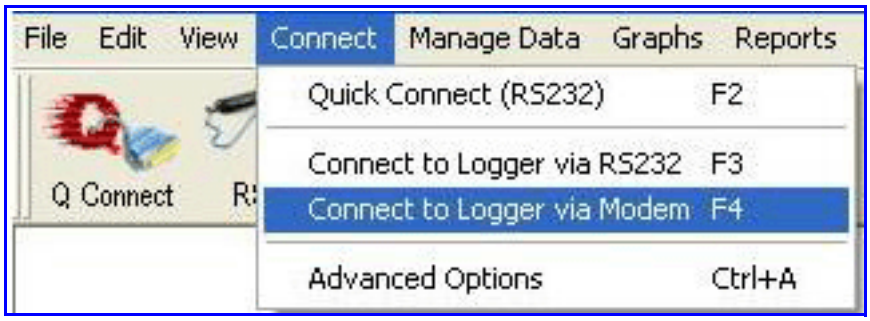
Open the Modem Connect dialog

From the Welcome screen left navigation bar

- Click **CONNECT TO LOGGER**, then click **CONNECT TO LOGGER USING MODEM**.

From the Connect menu

- Select **CONNECT>CONNECT TO LOGGER VIA MODEM**.



From the toolbar

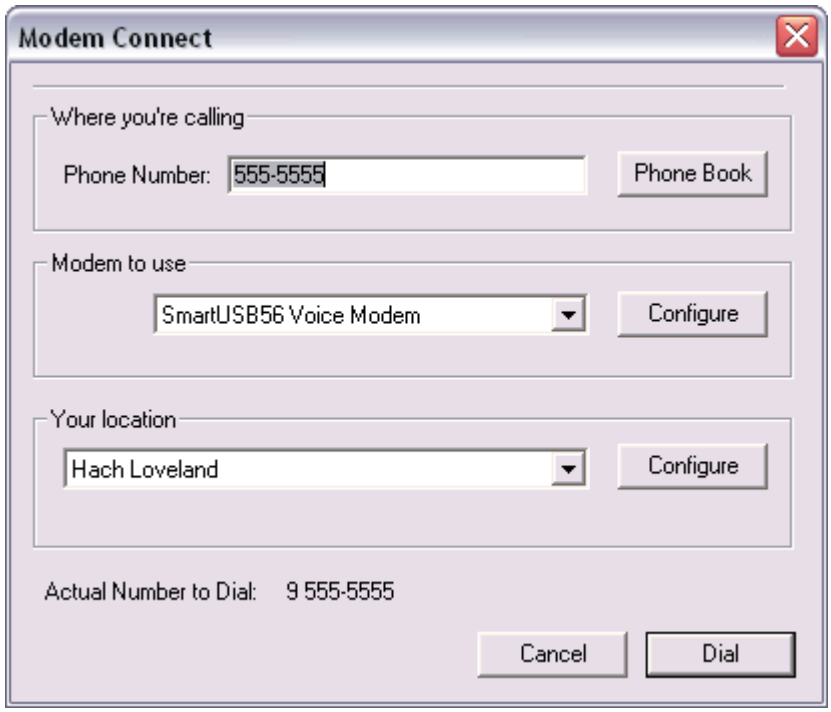
- Click **MODEM**.

With the keyboard shortcut

- Press **F4**.

Modem setup

In the Modem Connect dialog:



1. Select the number for the modem to dial:
   - Select a phone number.
   - Add a phone number.
2. Select the modem:
   - Select a modem.
   - Configure a modem.
3. Select the calling location:
   - Select a dialing location.
   - Configure an existing location.
   - Add a new location.
4. Click **DIAL**.

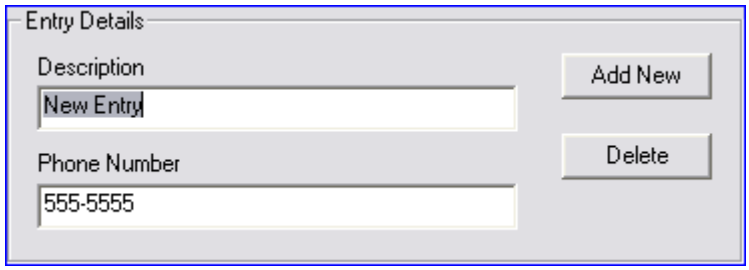
Select a phone number

In the Where you're calling box, click **PHONE BOOK** for dialing options.

- Select the phone number to dial. Click **OK**.

Add a phone number

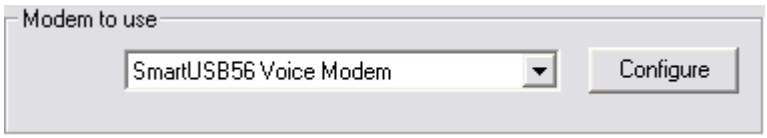
1. In the Where you're calling box, click **PHONE BOOK** for dialing options.



2. If no numbers are entered, or the required number is missing, click **ADD NEW**.
3. Enter a description and the new number. Click **OK**.

Select a modem

In the Modem to use box, open the drop-down list and click a modem to select it.



Configure a modem

1. In the Modem to use box, click **CONFIGURE** to edit the selected modem options.
   - In the **General** tab, configure call preferences and data connection preferences.
   - In the **Advanced** tab, configure the terminal window and hardware settings.
2. Click **OK** to accept the settings and return to the Modem Connect screen.

Select a dialing location

1. In the Your location box, open the drop-down list and click a location to select it.
2. Click **APPLY**, then click **OK**.

Configure an existing location

1. In the Your location box, click **CONFIGURE** to access dialing rules. The current location selection will be highlighted.
2. Click **EDIT**.
   - In the **General** tab, edit the location name, country, area code, dialing rules, call waiting preferences and tone or pulse.
   - In the **Area Code Rules** tab, select a rule from the list. Click **NEW** to add a rule, or click **EDIT** to change an existing rule.

- In the **Calling Card** tab, click a card on the list to select it. Click **EDIT** to change the card. Click **NEW** to add a card.

3. Click **APPLY**, then click **OK** to return to the Phone and Modem Options dialog.
4. Click **APPLY** then **OK** to return to the Modem Connect screen.

Add a new location

1. In the Your location box, click **CONFIGURE** to access dialing rules. The current location selection will be highlighted.
2. Click **NEW**.
   - In the **General** tab, edit the location name, country, area code, dialing rules, call waiting preferences and tone or pulse.
   - In the **Area Code Rules** tab, select a rule from the list. Click **NEW** to add a rule, or click **EDIT** to change an existing rule.
   - In the **Calling Card** tab, click a card on the list to select it. Click **EDIT** to change the card. Click **NEW** to add a card.
3. Click **APPLY**, then click **OK** to return to the Phone and Modem Options dialog.

3.2 Advanced options

Important Note: *Advanced communication setup and debug logging options should only be accessed under the guidance of technical support.*

To open the Advanced Options dialog:

- Select **CONNECT>ADVANCED OPTIONS**

OR

- Press **CTRL+A** on the keyboard.

Section 4 Remote programming

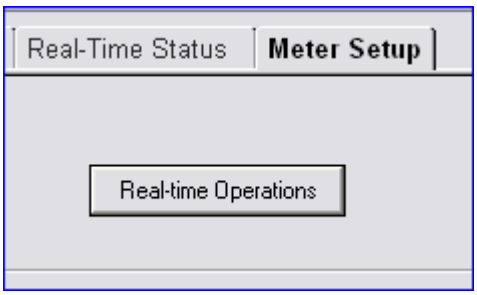
In this section

- Real-time remote programming
- Fixed operations remote programming

4.1 Real-time remote programming

Settings made in real-time remote programming will immediately affect the operation of the device.

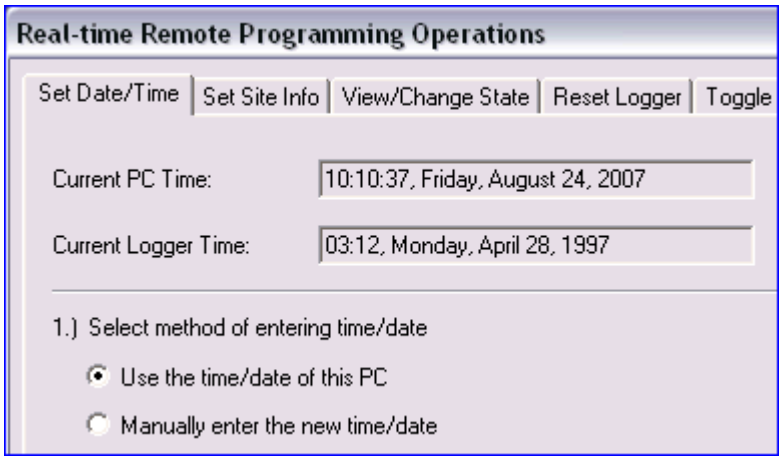
1. Connect to the logger. See RS232 connection to logger or Modem connection to logger.
2. Select the **Meter Setup** tab.
3. Click **REAL-TIME OPERATIONS**.



4. Use the Real-time Remote Programming Operations dialog to update logger settings:

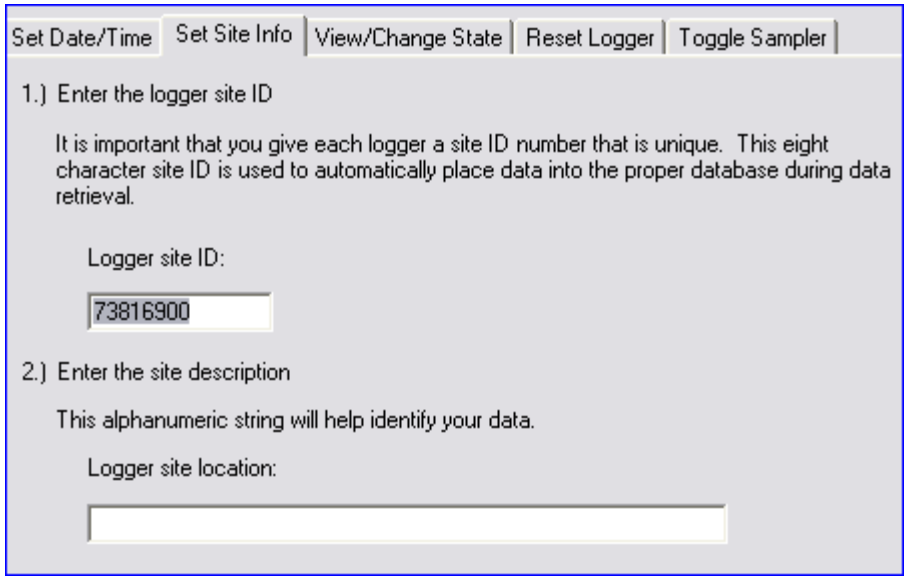
Set Date/Time tab

Select PC or manual entry for date and time.



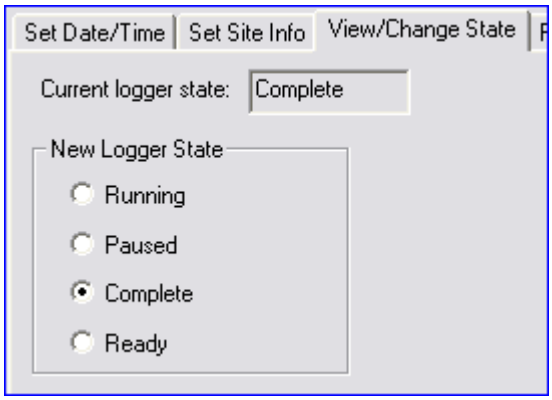
Set Site Info tab

Enter or edit the site identification and description.


Set Date/Time
Set Site Info
View/Change State
Reset Logger
Toggle Sampler
1.) Enter the logger site ID
It is important that you give each logger a site ID number that is unique. This eight character site ID is used to automatically place data into the proper database during data retrieval.
Logger site ID:
73816900
2.) Enter the site description
This alphanumeric string will help identify your data.
Logger site location:

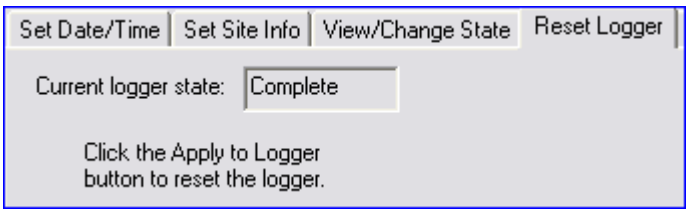
View/Change State tab

View and change the logger state (running, paused, complete or ready).



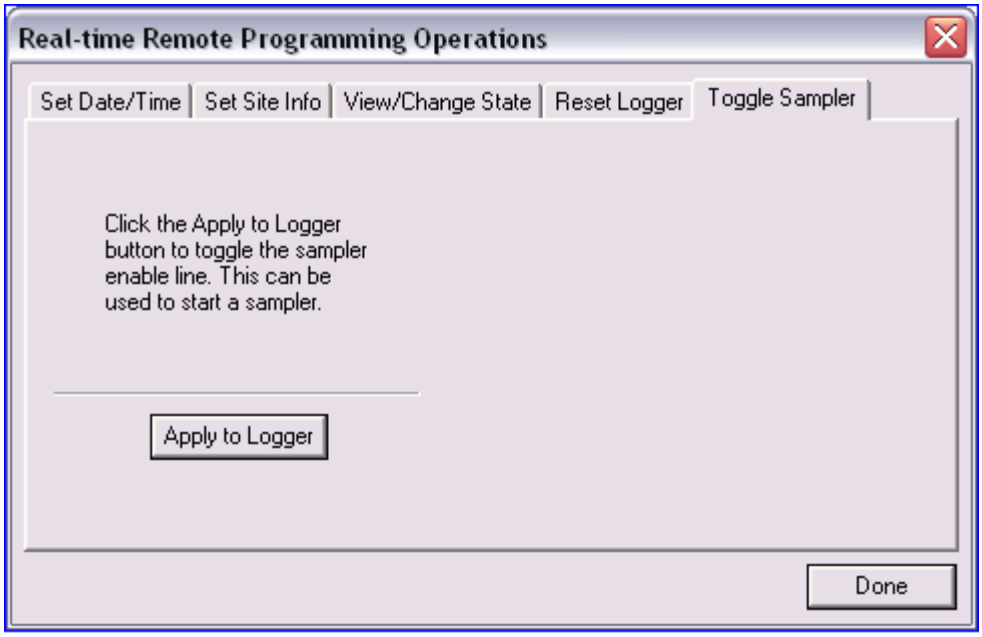
Reset Logger tab

Click **APPLY TO LOGGER** to reset the logger.



Toggle Sampler tab

Click **APPLY TO LOGGER** to toggle the sample, enable line or start a sampler.


Real-time Remote Programming Operations
Set Date/Time
Set Site Info
View/Change State
Reset Logger
Toggle Sampler
Click the Apply to Logger button to toggle the sampler enable line. This can be used to start a sampler.
Apply to Logger
Done

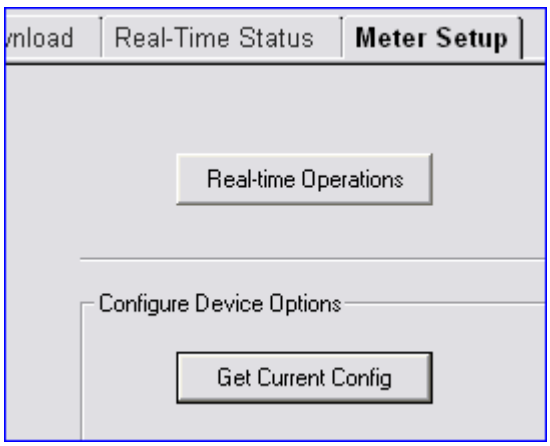
5. Click **DONE**.

Note: *Click **APPLY TO LOGGER** in any tab to start using the new settings.*

4.2 Fixed operations remote programming

Settings made in fixed operations remote programming affect communication, sample pacing, alarms, logging, primary device and sensor assignment.

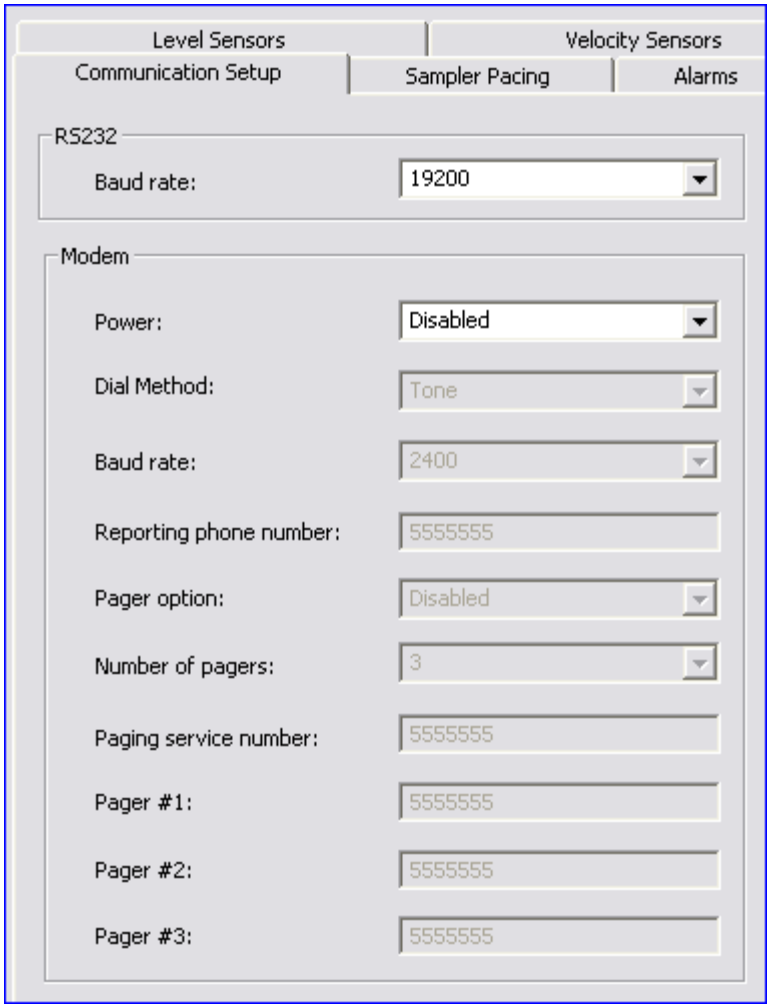
1. Connect to the logger. See RS232 connection to logger or Modem connection to logger.
2. Select the **Meter Setup** tab.
3. Click **GET CURRENT CONFIG**.



4. Use the Real-time Remote Programming Operations dialog to update logger settings:

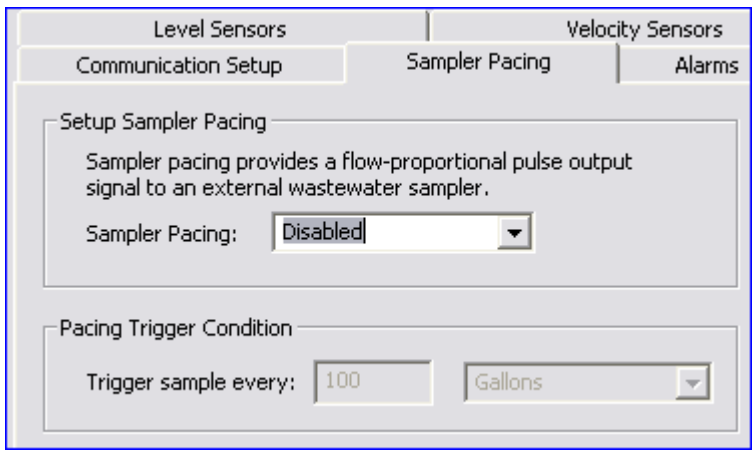
Communication Setup tab

Configure baud rate or modem settings.



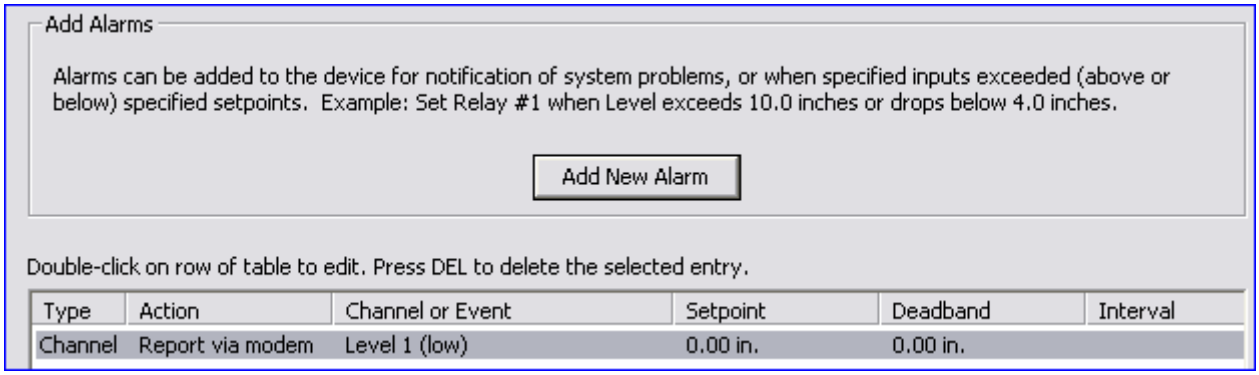
Sampler Pacing tab

Enable pacing and set the trigger condition; disable pacing.



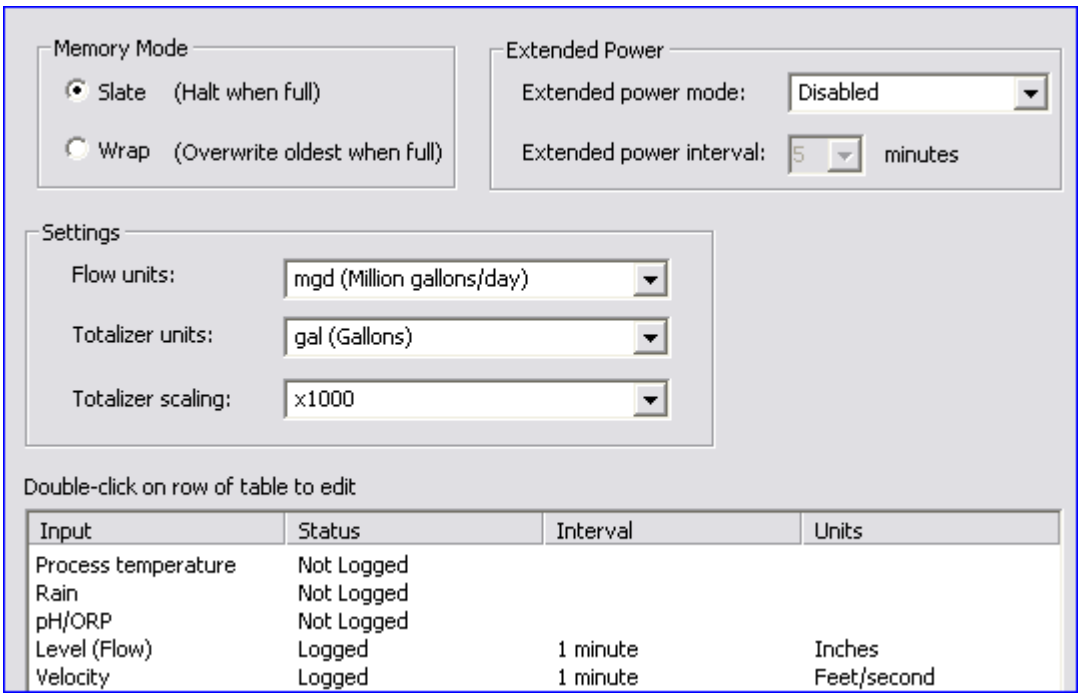
Alarms tab

Add or edit alarms for the system or for channels. Set alarm actions and triggers. Click **ADD NEW ALARM** to add an alarm. Double-click an existing alarm to edit the alarm.


Add Alarms
Alarms can be added to the device for notification of system problems, or when specified inputs exceeded (above or below) specified setpoints. Example: Set Relay #1 when Level exceeds 10.0 inches or drops below 4.0 inches.
Add New Alarm
Double-click on row of table to edit. Press DEL to delete the selected entry.
Type
Action
Channel or Event
Setpoint
Deadband
Interval
Channel
Report via modem
Level 1 (low)
0.00 in.
0.00 in.

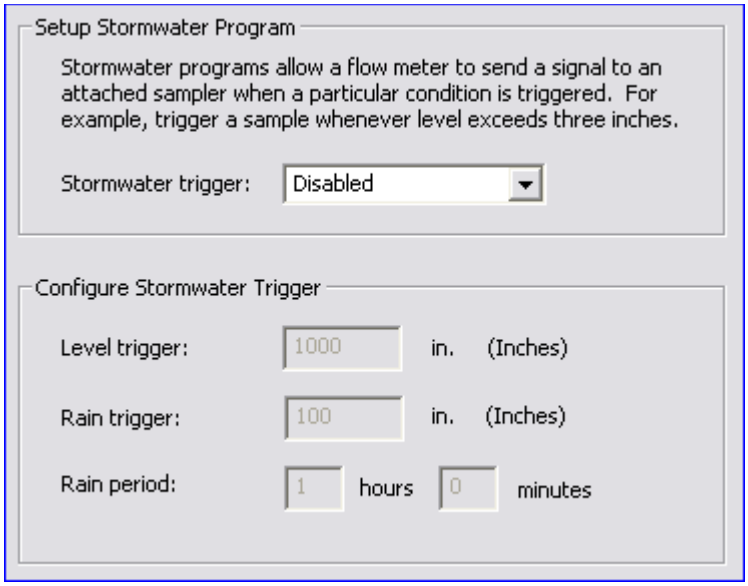
Data Logging tab

Set memory mode, extended power, logged channels, logging intervals and units. Double-click the channel to configure the channel.



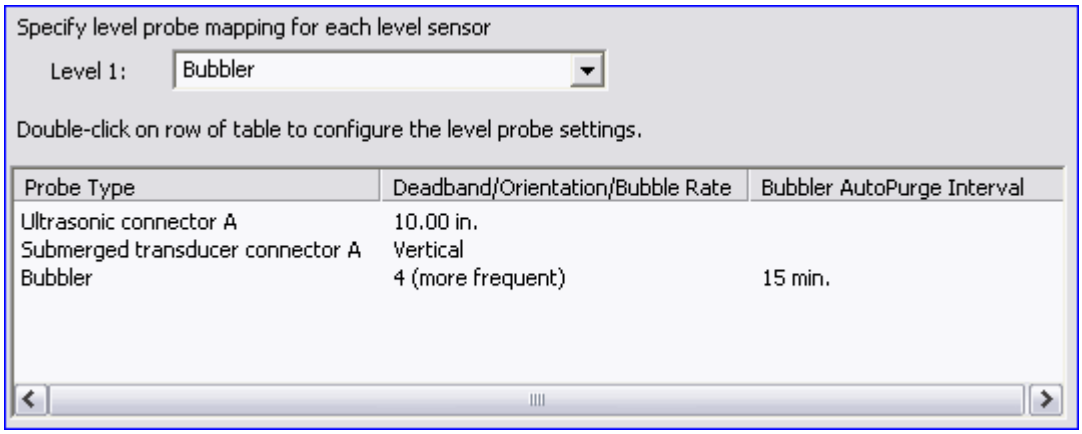
Stormwater tab

Enable and configure stormwater triggers; disable stormwater program.



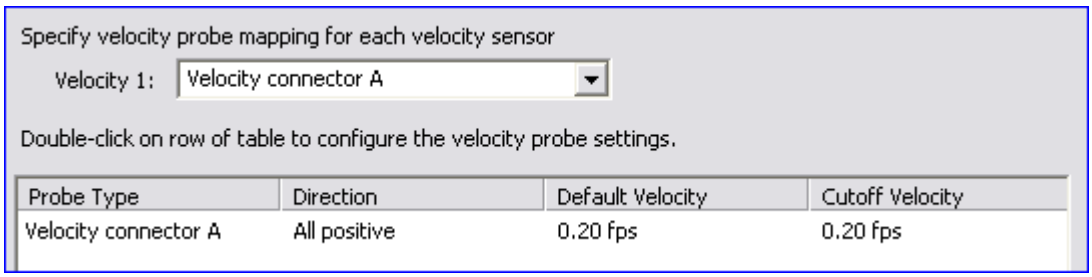
Level Sensors tab

Specify level sensor mapping. Double-click a probe in the list to edit the probe.



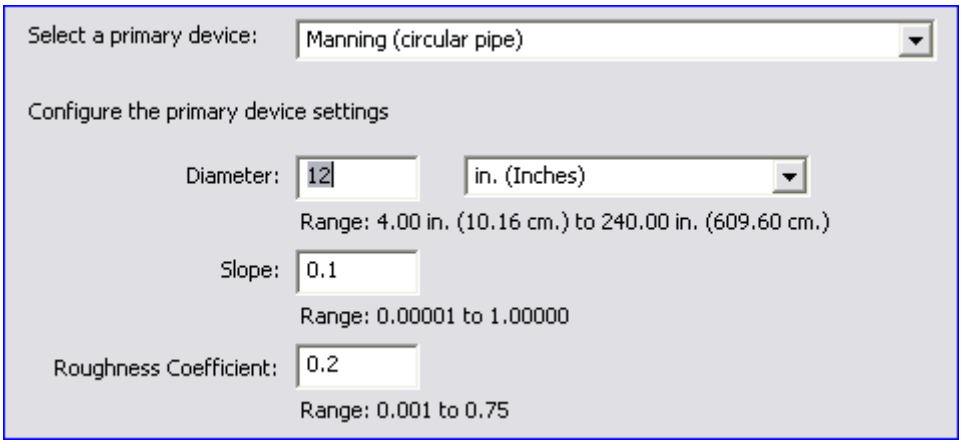
Velocity Sensors tab

Specify velocity sensor mapping. Double-click a probe in the list to edit the probe.



Primary Device tab

Select a primary device and configure device settings.



5. Apply the settings.
   - Click **PROGRAM LOGGER** to apply settings.
   - Click **SAVE TO FILE AND EXIT** to save settings to a different template.

Section 5 Data management

In this section

- Manage site file data
- Manage database sites
- Import site data
- Export site data

5.1 Manage site file data

Site file data is managed using the site file explorer. Use the site file explorer to:

- View site file data
- Delete site file data
- Add site files to a database
- Add and delete directories to site file explorer
- Organize directories in site file explorer

5.1.1 Site file explorer

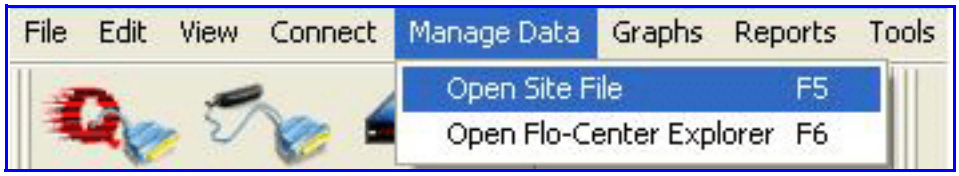
Open Site File Explorer

From the Welcome Screen

- On the left navigation bar, click **MANAGE YOUR DATA**, then click **VIEW / ORGANIZE YOUR SITE FILE DATA**.

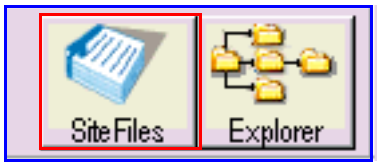
From the Manage Data menu

- Select **MANAGE DATA>OPEN SITE FILE**.



From the toolbar

- Click **SITE FILES**.



With the keyboard shortcut

- Press **F5**.

View site file data

1. Open the Site file explorer.

2. In the site file explorer directories box, click a directory to explore. A list of site files contained in the directory will show in the Site Files of Selected Directory box.
3. Click a file to view the summary information in the Summary Information box.
4. Click **OPEN** to view detailed site file information.
   - **Information** tab—Add the site file date to the database, or access a quick view graph, report or scatter plot.
   - **Analysis** tab—View and print or save data from the event log, program settings, sample history or current status.
   - **Graphs** tab—Click a template to view the site file data. Click **DISPLAY GRAPH** to show the data in the graph template.
   - **Reports** tab—Click a template to view the site file data. Click **DISPLAY REPORT** to show the data in the report template.

Delete site file data

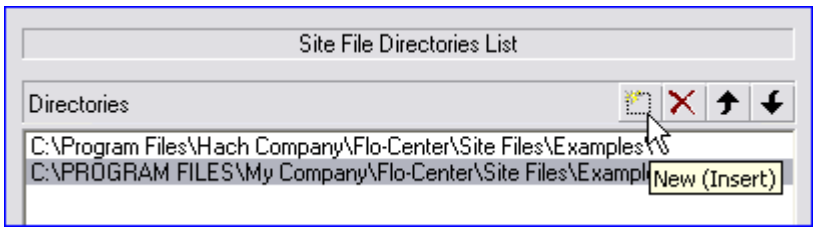
1. Open the Site file explorer.
2. In the site file explorer directories box, click a directory to explore. A list of site files contained in the directory will show in the Site Files of Selected Directory box.
3. Click a file to view the summary information in the Summary Information box.
4. Click **DELETE** to remove the site file data from the directory.

Add site files to a database

1. Open the Site file explorer.
2. In the site file explorer directories box, click a directory to explore. A list of site files contained in the directory will show in the Site Files of Selected Directory box.
3. Click a file to view the summary information in the Summary Information box.
4. Click **ADD TO DATABASE** to open the Select a site dialog box.
5. Click a database site, then click **OK** to add the site data to the selected site database.

Add and delete directories to site file explorer

1. Open the Site file explorer.
2. In the site file explorer directories box, click **NEW (INSERT)**.

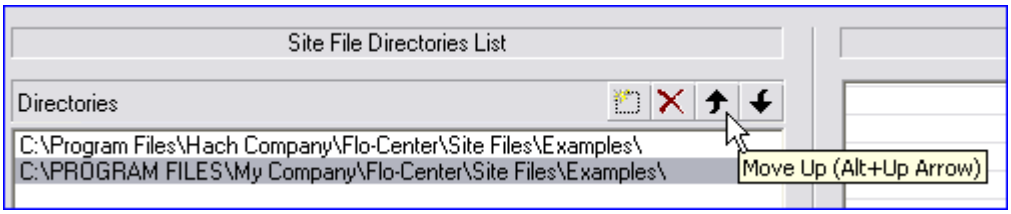


3. Browse to the new directory. Click **OK** to add the new directory.

To delete a directory from the list, highlight the list and click **DELETE**.

Organize directories in site file explorer

1. Open the Site file explorer.
2. In the site file explorer directories box, highlight the directory to move.
3. Click **UP** or **DOWN** to move the directory in the list.



5.2 Manage database sites

Database sites are managed using the Flo-Center explorer. Use Flo-Center explorer to:

- Create a new database site
- Organize database sites
- Modify a database site
- Edit database site data
- Set channel unit preferences
- Add a graph template to a database site
- Add a report template to a database site
- Generate graphs
- Generate reports

5.2.1 Flo-Center explorer

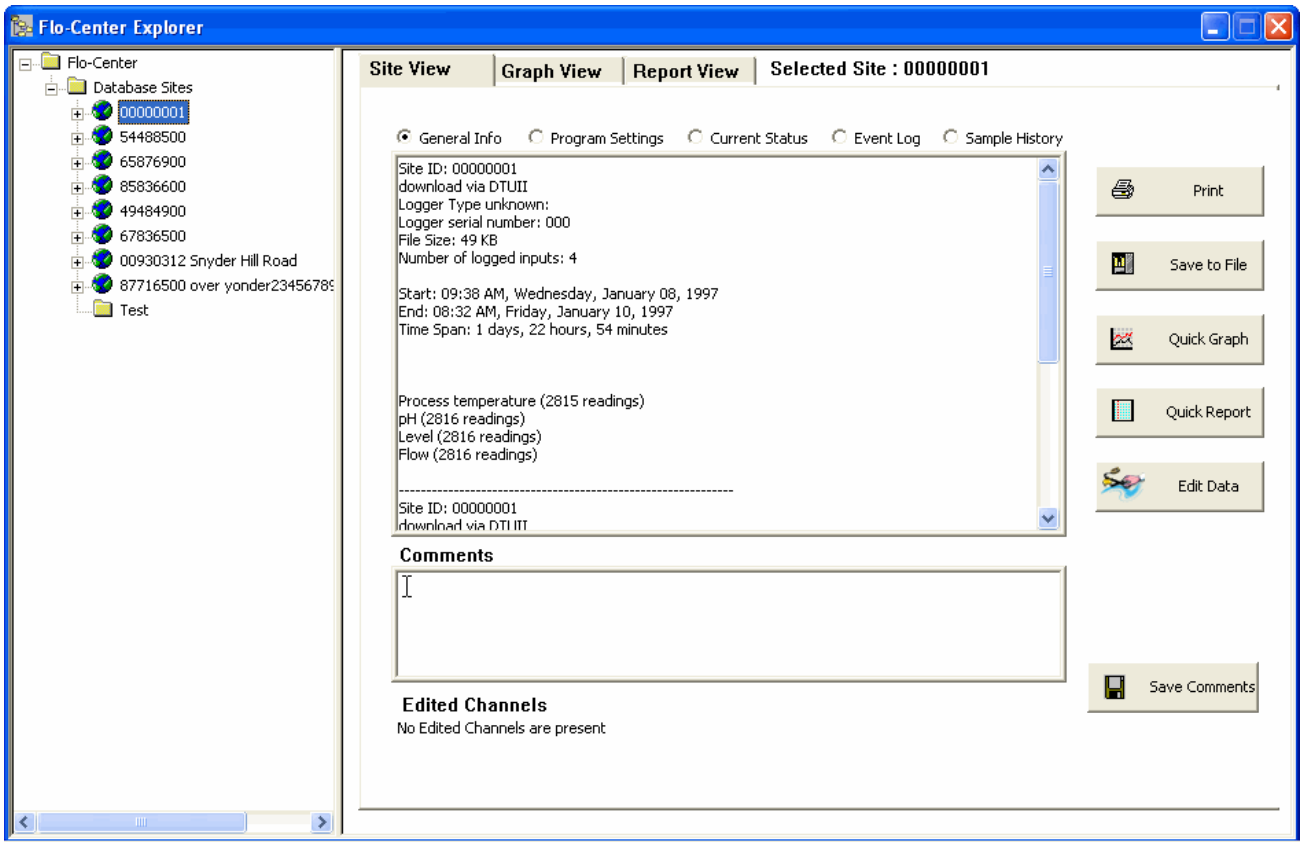


Figure 3 Flo-Center explorer main screen

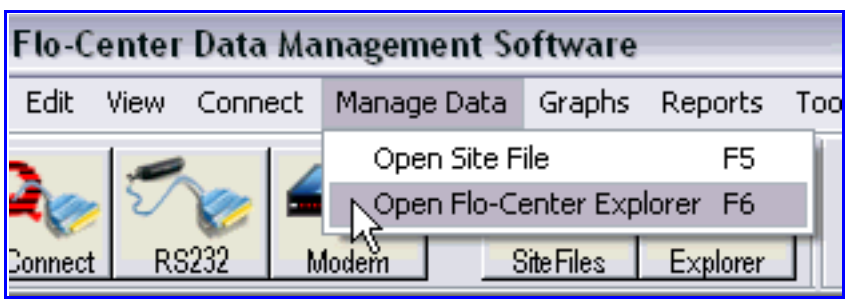
Open Flo-Center Explorer

From the Welcome Screen

- On the left navigation bar, click **MANAGE YOUR DATA.**, then click **CREATE / MODIFY / VIEW DATABASE SITES**.

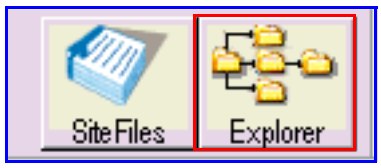
From the Manage Data menu

- Click **MANAGE DATA>OPEN FLO-CENTER EXPLORER**.



From the toolbar

- Click **EXPLORER**.



With the keyboard shortcut

- Press **F6**.

View site information

Use the site information dialog to quickly view, graph, report, print and comment on site information.

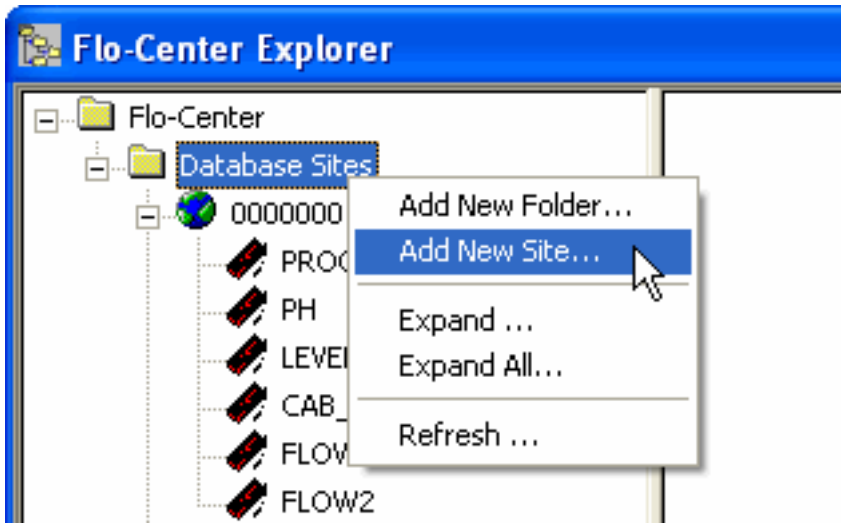
- **Information** tab—Summarize information in a graph, report, level versus velocity scatter plot, or velocity versus level scatter plot.
- **Analysis** tab—View, print or save general information, program settings, event logs, current status and sample history.
- **Comments** tab—Record and save or clear comments.

To access site information:

1. Open the Flo-Center explorer.
2. Select a site and click **SITE INFO**.

Create a new database site

1. Open the Flo-Center explorer.
2. Right-click the Database Sites folder icon and select **ADD NEW SITE**.



3. In the Site Labels dialog, enter:
   - A site name

- A description, such as an address
- Connection information, such as a modem phone number
- Information about the logger: site ID, location and serial number

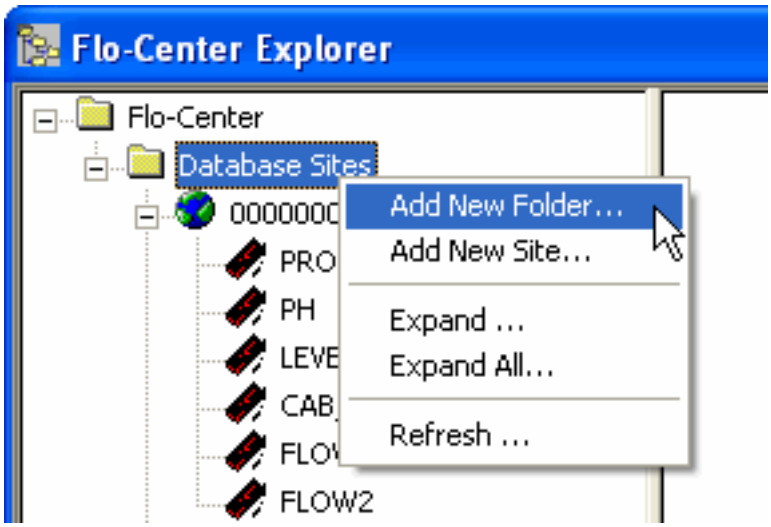
4. Click **FINISH** to add the new site to the Database Sites folder.

To add site data to the new database site, see Add site files to a database.

Organize database sites

New folders can be added to the Database Sites folder to provide hierarchical structure for database sites.

1. Open the Flo-Center explorer.
2. Right-click the Database Sites folder icon and select **ADD NEW FOLDER**.



3. In the Database Folder dialog, enter:
   - A name for the folder
   - A description of the folder and its contents
4. Click **OK** to add the folder to the Database Sites folder.

To delete a folder, right-click the folder and select **DELETE**.

Move a site

1. Open the Flo-Center explorer.
2. Right-click the database sites and select **MOVE SITE**.
3. In the Select a Folder window, select the new folder location and click **OK**.

Add existing sites to the new folder

1. Right-click the database site and select **MOVE SITE**.
2. Select the new folder location and click **OK**.

OR

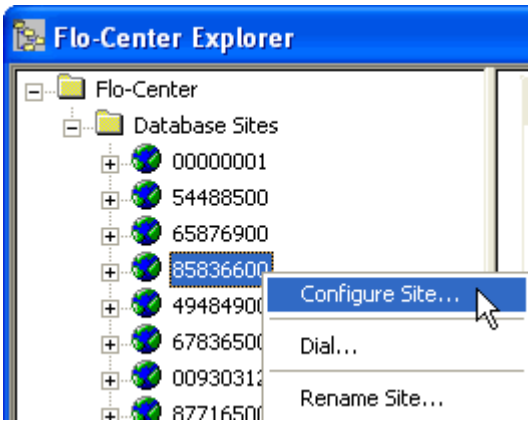
Click and drag a site to the new location.

To create a new site within the new folder, see Create a new database site.

Modify a database site

Once created, a database site can be renamed or reconfigured as needed. To modify database site information:

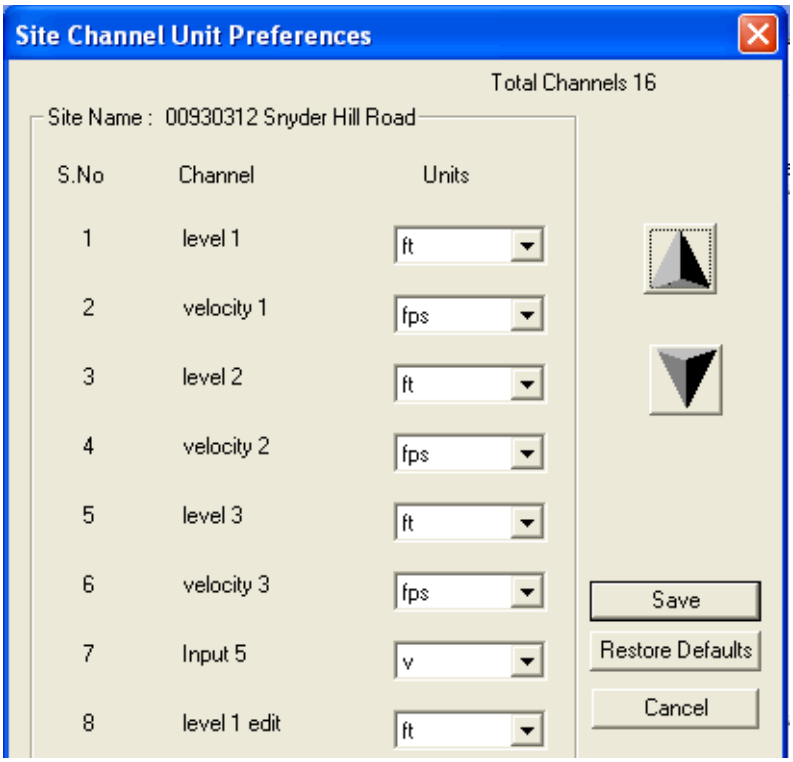
1. Open the Flo-Center explorer.
2. Right-click the database site and select **CONFIGURE SITE**.



3. In the Site Labels dialog, enter or change:
   - The site name
   - The description, such as an address
   - Connection information, such as a modem phone number
   - Information about the logger: site ID, location and serial number
4. Click **FINISH** to save the changes.

Set channel unit preferences

1. Open the Flo-Center explorer.
2. Right-click the database site and select **SITE PREFERENCES**.
3. Select the units for the desired channels.

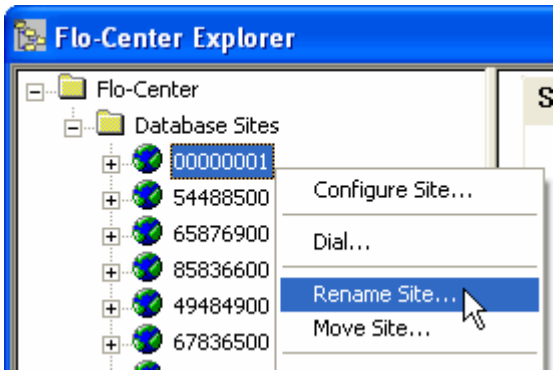


4. Click **SAVE** to save the changes.

Rename a database site

A database site can also be renamed in the Flo-Center explorer window:

1. Open the Flo-Center explorer.
2. Right-click the database site and select **RENAME SITE**.



3. Type the new name, then click outside the field to save the name. The new site name will also show in the Site Labels dialog in the Site Name field.

5.2.2 Edit database site data

The data editor is used to edit data in all channels including flow. The data editor is accessed through Flo-Center explorer or through the Edit Data wizard.

Important Note: *Changes made to level and velocity channels will affect flow channels that are dependent upon the edited level and velocity channels.*

Edit data from Flo-Center explorer

1. Open the Flo-Center explorer.
2. Click a database site.
3. Click **EDIT DATA** to access the data edit function.

Open the Edit Data wizard

From the Welcome screen

- Click **EDIT DATA** in the left navigation bar.

From the Edit menu

- Select **EDIT> EDIT DATA WIZARD**

.

From the toolbar

- Click **EDIT DATA**.

With a keyboard shortcut

- Press **CTRL+D**.

Edit data from the Edit Data wizard

1. Open the Edit Data wizard.
2. Click **NEXT**.
3. Select channel data to edit. Channels must be chosen from a single site.
   - Click in a single cell to select the cell.

- To select a range of cells in a channel (column), hold the left mouse button and scroll to select the cells in a single channel or across multiple channels.
- To select non-adjacent individual cells, press and hold the **CRTL** key and click each cell.

4. Click **NEXT**, then **FINISH** to open the data edit screen.
5. Edit database site data as required. Click **APPLY**.
6. Click **SAVE** to keep the data changes. Click **CANCEL** to discard the changes.

Create a new flow

1. In the Edit Data window, click **CREATE NEW FLOW**.
2. In the Primary Device Settings dialog, select the primary device and attributes. Click **OK** to return to the Flow Edit window.
3. Click **SAVE**.

Configure a flow

1. In the Edit Data window, click in a flow channel.
2. Click **CONFIG FLOW**.
3. Set the primary device settings for the flow.

Delete a flow

1. In the Edit Data window, click in a flow channel.
2. Click **DELETE**.
3. Click **YES** to delete the flow.

5.2.3 Generate graphs

Use predefined or custom templates to generate graphs from the Flo-Center explorer or with the Graph wizard. Templates are used to specify the data to include and how to format the data for display. Templates can be used for multiple sites. See the Graph Template Manager for more information about working with templates.

Note: *Default graphs generated from Flo-Center explorer will pull data from the entire database site. To graph site file data, use the Graph wizard.*

Drag and drop graphs

Note: *The drag and drop graph feature is only available through the New Graph button in the Graph View tab window of the Flo-Center explorer.*

Generate a graph manually in Flo-Center explorer

1. Open the Flo-Center explorer.
2. Click a database site.
3. Click **GRAPHS** to open the Graph Templates dialog.
4. Click a graph template, then click **DISPLAY GRAPH**.

Multi-site graphs
For multi-site graphs, the selected database site will appear in the first site place holder. Drag sites to the additional place holders to include their data in the graph.

Configure site place holders with the **GraphTmpIt** button or through the **Graph Template Manager**.

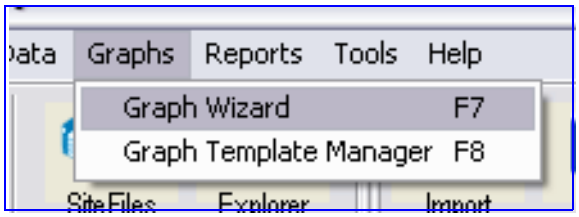
Open the Graph wizard

From the Welcome screen

- Click **GRAPHS AND REPORTS**, then **CREATE A GRAPH FROM A SITE FILE / DATABASE**.

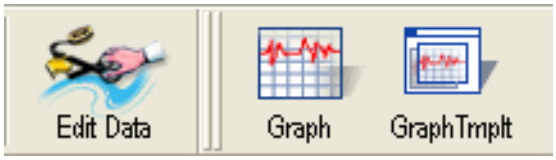
From the Graphs menu

- Select **GRAPHS>GRAPH WIZARD**.



From the toolbar

- Click **GRAPH** on the toolbar.



With a keyboard shortcut

- Press **F7**.

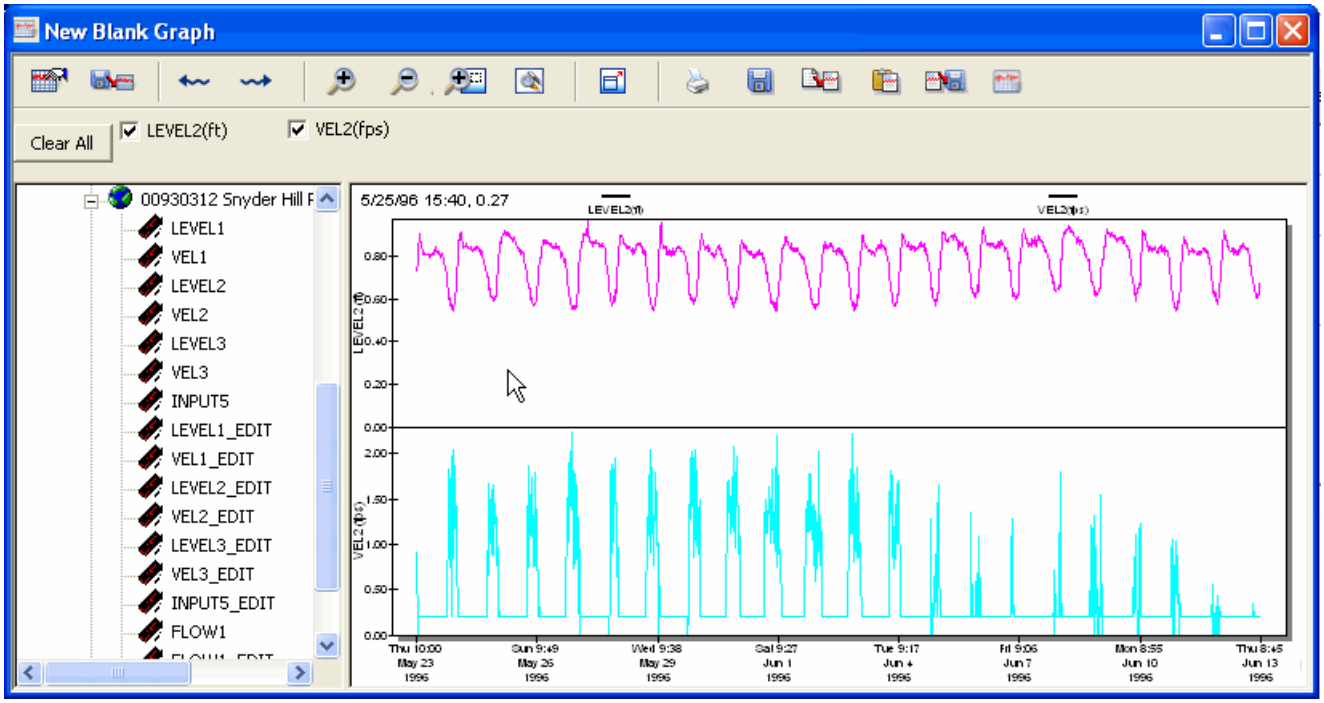
Generate a graph manually with the Graph wizard

1. Open the Graph wizard.
2. Select the data source: Site File or Database. Click **NEXT**.
3. Click a graph template to select it. Click **NEXT**.
4. Select the data from a site file or database site.
   - Click the site file data to analyze.
   - Click channels from a database site to analyze.
5. Click **FINISH**.

Generate a graph with the New Graph button

1. Open Flo-Center Explorer.
2. Click on a database site to select it.

3. Select the **Graph View** tab.
4. Click the **NEW GRAPH** button to create a new blank graph.
5. Drag and drop measurements from the database site to the blank graph.



6. Click inside the generated graph to activate the New Blank Graph toolbar buttons. Change or save the graph settings with the toolbar buttons or right click in the graph to use the menu.
7. Deselect a checkbox to remove the channel from the graph view. A minimum of one channel must be selected. Click on the Clear All button to clear the entire graph.

Add a graph template to a database site

1. Open Flo-Center Explorer
2. Select a database site.
3. Click on the **Graph View** tab.
4. Select a graph template.
5. Click the **ADD TEMPLATE TO SITE** button.

5.2.4 Generate reports

Use predefined or custom templates to generate reports from the Flo-Center explorer or with the Report wizard. Templates are used to specify the data to include and how to display it. Templates can be used for multiple sites. See the Report Template Manager for more information about working with templates.

Note: *Default reports generated from Flo-Center explorer will pull data from the entire database site. To generate a report on site file data, use the Report wizard.*

Generate a report manually with Flo-Center explorer

1. Open the Flo-Center explorer.
2. Click a database site to select it.
3. Click **REPORTS** to open the Reports Templates dialog.

Click a report template to select it. Click **DISPLAY REPORT**. Flo-Center will generate a report in the chosen template.

Multi-site reports
For multi-site reports, the selected database site will appear in the first site place holder. Drag sites to the additional place holders to include the data in the report.

Configure site place holders with the **GraphTmplt** button or through the **Graph Template Manager**.

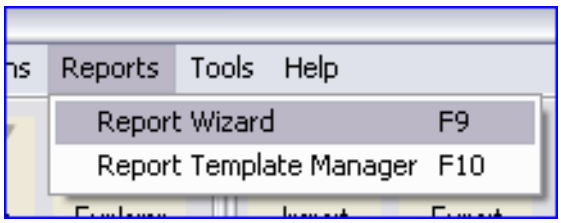
Open the Report wizard

From the Welcome screen

- Click **GRAPHS AND REPORTS**, then **CREATE A REPORT FROM A SITE FILE / DATABASE**.

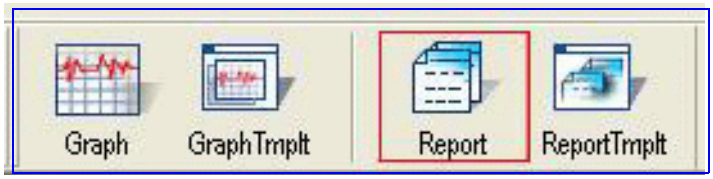
From the Reports menu

- Select **REPORTS>REPORT WIZARD**.



From the toolbar

- Click **REPORT**.



With a keyboard shortcut

- Press **F9**.

Generate a report manually with the Report wizard

1. Open the Report wizard.
2. Select the data source: Site File or Database. Click **NEXT**.
3. Click a report template, then click **NEXT**.
4. Select the data from a site file or database site.

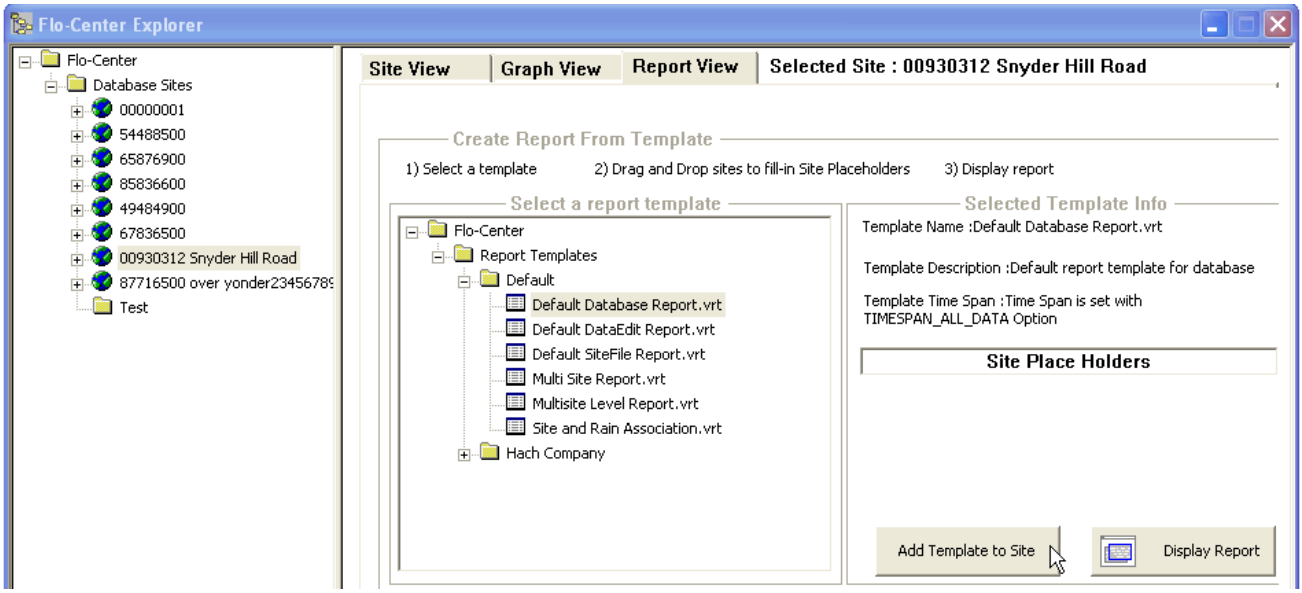
- Click the site file data to analyze.
- Click channels from a database site to analyze.

5. Click **FINISH**.

Add a report template to a database site

A template can be added to a database site. The template will automatically be used when a report is generated for that site.

1. Open Flo-Center Explorer.
2. Click on a database site to select it.
3. Select the Report View tab.
4. Choose a report template to add to the site.
5. Click **ADD TEMPLATE TO SITE.**



Delete template from a site

1. Right click on the report template below the database site.
2. Select **DELETE REPORT TEMPLATE.**
3. Select **YES** in the question box to delete the template.

5.3 Import site data

The Import Wizard guides the user to:

- Import external data into a database from InSight or a meter file
- Import external data into a database from a *.csv file

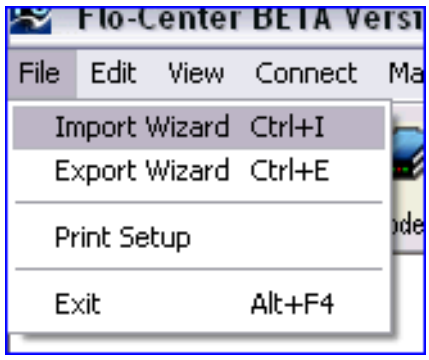
Open the Import Wizard

From the Welcome screen

- Click **MANAGE YOUR DATA**, then click **IMPORT SITE FILE DATA TO DATABASE**.

From the File menu

- Click **FILE>IMPORT WIZARD**.



From the toolbar

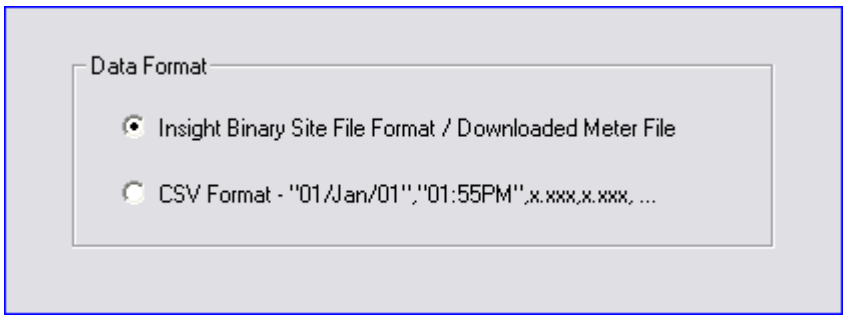
- Click **IMPORT**.

With the keyboard shortcut

- Press **CTRL+I**.

Import external data into a database from InSight or a meter file

1. Open the Import Wizard.
2. Click **NEXT**.
3. Select the data format **INSIGHT BINARY SITE FILE**.



4. Click **NEXT**.
5. Set the Binary file import options:

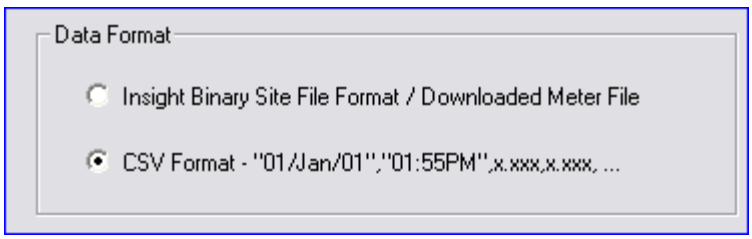
Table 1 Binary file import options

Matching criteria	Import options
Matches a site in the DB (database)	Ignore file—do not import
	Import to existing site
Does not match any DB sites	Ignore file—do not import
	Automatically create a new DB site
Has a partial match in the DB	Ignore file—do not import
	Automatically create a new DB site
	List partial matches
When data points in input file already exist in the DB	Overwrite existing data points
	Add new data points only

6. Add files to the import list.
   - Click **BROWSE** to search for a specific site file.
   - Click **SCAN** to scan a directory for all binary files.
7. Select the site files and click **RESCAN SITE MATCH** to check the import list status.
8. Click **FINISH**.

Import external data into a database from a *.csv file

1. Open the Import Wizard.
2. Click **NEXT**.
3. Select the **CSV FORMAT** data format.



4. Click **NEXT**.
5. Set the Binary file import options:

Table 2 Binary file import options

Matching criteria	Import behavior
When data points in input file already exist in the DB	Overwrite existing data points
	Add new datapoints only

6. Add files to the import list.
   - Click **BROWSE** to search for a specific site file.
   - Click **SCAN** to scan a directory for all *.csv files.

7. Select the site files and click **RESOLVE DB SITE** to check the import list status.
8. Click **FINISH**.

5.4 Export site data

The Export Wizard guides the user to format channel data for export:

- Export channel data to a *.csv file

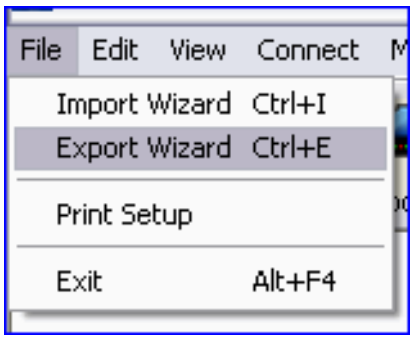
Open the Export Wizard

From the Welcome screen

- Click **MANAGE YOUR DATA**, then click **EXPORT DATABASE SITES TO CSV FILE**.

From the File menu

- Click **FILE>EXPORT WIZARD**.



From the toolbar

- Click **EXPORT**.

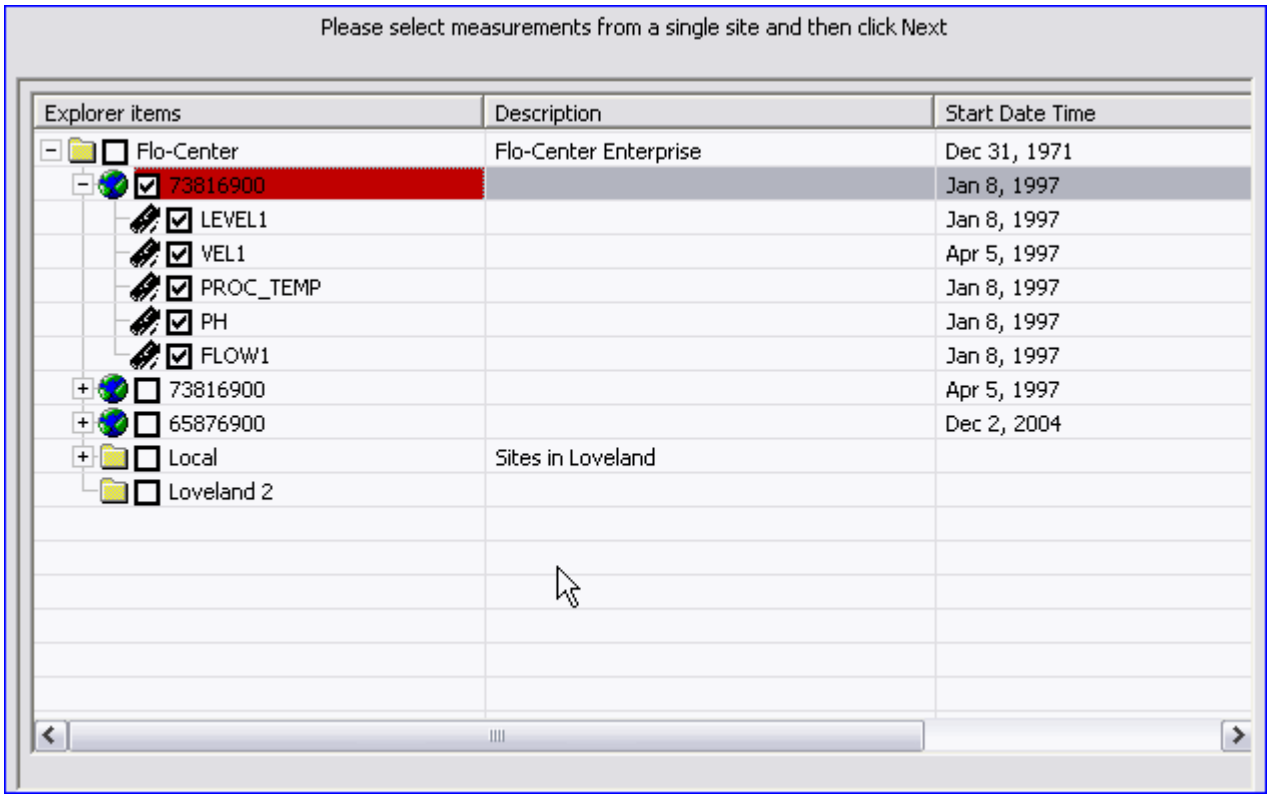
With the keyboard shortcut

- Press **CTRL+E**.

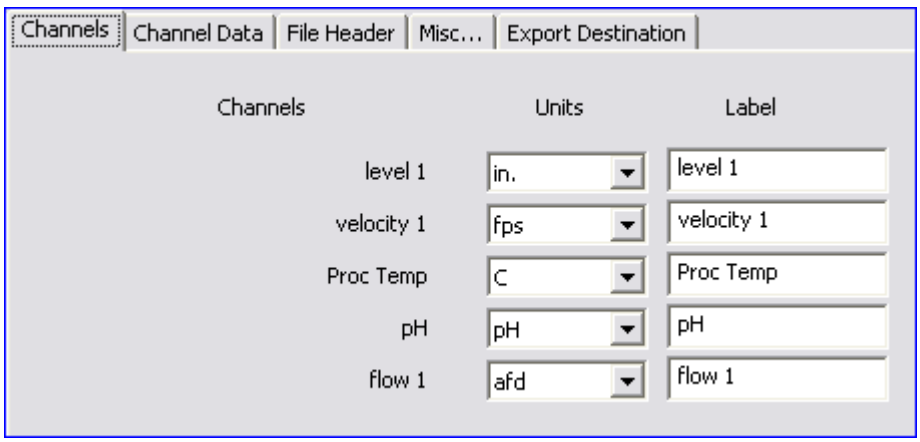
Export channel data to a *.csv file

Data from one or more channels of a single site can be exported to a *.csv (comma separated values) file. See Flo-Center *.csv file format for more information.

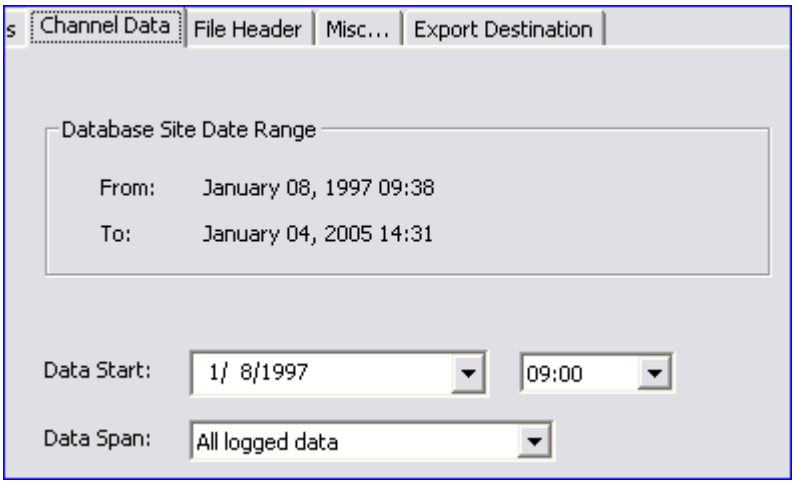
1. Open the Export Wizard. Click **NEXT**.
2. Click channels from a single site to select for export.



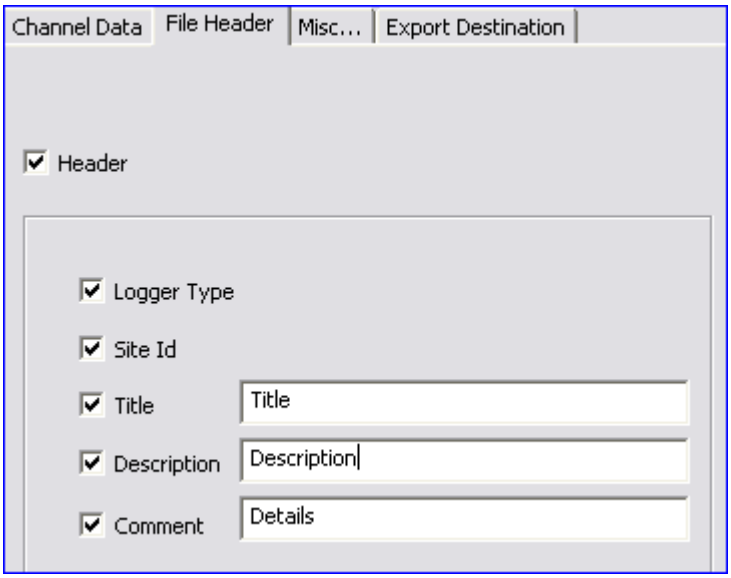
3. Click **NEXT**.
4. Configure the channel data.
   - **Channels** tab options—varies based on the selected channels



   - **Channel Data** tab—Set the data range, data start date and time span.



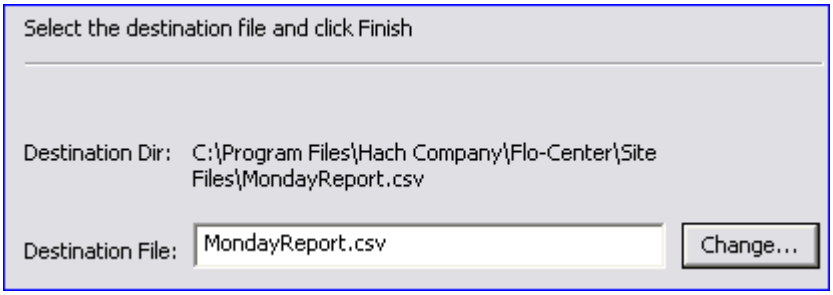
- **FILE HEADER** tab—Configure or disable the channel header.



- **MISC** tab—Select the site information to display.

- **Export Destination** tab—Name the export file and accept or change the export file destination

.



5. Click **FINISH**.

Section 6 Custom graphs and reports

In this section

- Graph Template Manager
- Report Template Manager
- Sample history

6.1 Graph Template Manager

In the Graph Template Manager, new templates can be created or imported, and existing templates can be copied, edited, deleted or exported.

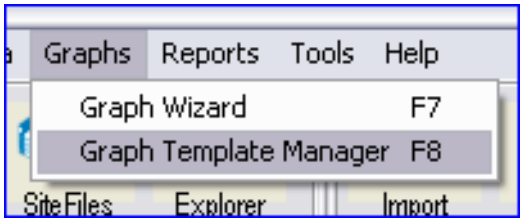
Open the Graph Template Manager

From the Welcome Screen

- Click **GRAPHS AND REPORTS**, then click **CREATE / MODIFY / DELETE GRAPH TEMPLATES**.

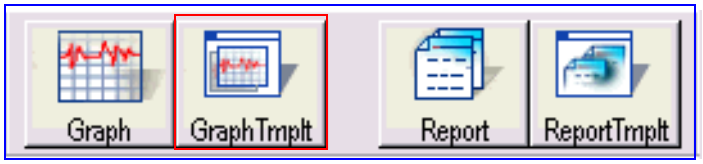
From the Graphs menu

- Select **GRAPHS>GRAPHS TEMPLATE MANAGER**.



From the toolbar

- Click **GRAPH TEMPLATE**.



With a keyboard shortcut

- Press **F8**.

Create a new graph template

1. Open the Graph Template Manager.
2. Click **NEW**.
3. Configure the new template in the Graph template wizard.
4. Click **OK** at any time to exit the wizard and save the template settings.

Graph template wizard

Graph template wizard tab	Configuration options
Description	The template title
	The description
	The name of the template creator.
	The fields in this tab must be completed to create the template.
Time Span	Time and date span
	Start and stop time/date
	Start time and duration
	All data for a specified time frame
Attributes	Grid lines and ticks
	Window properties (background color and image)
	Graph properties (background color and image)
	Precision, font size and legend properties
	Type (line or scatter plot)
Summary Interval	Configure or disable the summary interval
Labels	Enter the title and subtitle labels.
Data Sets	Define data set formats or enable automatic formatting

Copy and edit a graph template

A new template can be based on an existing template by changing a copy of the existing template.

1. Open the Graph Template Manager.
2. Select the template to copy. Click **INSERT COPY**.
3. Click **OK** in the “Operation successful” dialog.
4. Select the copy of the template and click **EDIT**.
5. Configure the template in the Graph template wizard.
6. Click **OK** at any time to exit the wizard and save the template settings.

Import a graph template

Flo-Center template files can be imported with the Graph Template Manager.

1. Open the Graph Template Manager.
2. Select a template folder to import the template into.
3. Click **IMPORT**.
4. In the Open dialog, browse to find the graph template (*.vgt).
5. Select the template and click **OK**. Multiple templates can be selected.

Export a graph template

Flo-Center template files can be export to an external directory location with the Graph Template Manager.

1. Open the Graph Template Manager.

2. Select a template.
3. Click **EXPORT**.
4. In the Save As dialog, change the template storage location and rename the file as needed. Click **SAVE**.

6.2 Report Template Manager

In the Report Template Manager, new templates can be created or imported, and existing templates can be copied, edited, deleted or exported.

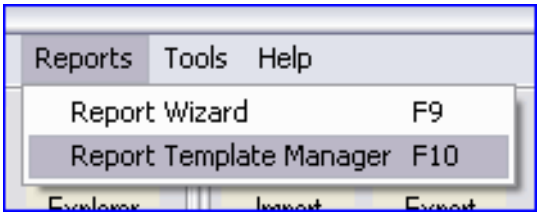
Open the Report Template Manager

From the Welcome Screen

- On the left navigation bar, click **GRAPHS AND REPORTS**., then click **CREATE / MODIFY / DELETE REPORT TEMPLATES**.

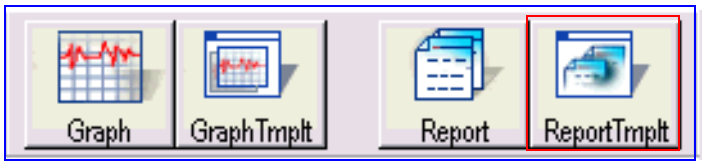
From the Graphs menu

- Select **REPORTS>REPORT TEMPLATE MANAGER**.



From the toolbar

- Click **REPORT TEMPLATE**.



With a keyboard shortcut

- Press **F10**.

Create a new report template

1. Open the Report Template Manager.
2. Click **NEW**.
3. Configure the new template in the Report template wizard.
4. Click **OK** at any time to exit the wizard and save the template settings.

Report template wizard

Report template wizard tab	Configuration options
Description	The template title
	The description
	The name of the template creator.
	The fields in this tab must be completed to create the template.
Time Span	Time and date span
	Start and stop time/date
	Start time and duration
	All data for a specified time frame
	Set a day (date only) range
Sections	Define and format the header information
	Enable and format the data section
	Enable and define the summary section
Summary Interval	Configure or disable the summary interval
Data Sets	Define data set formats or enable automatic formatting

Copy and edit a report template

A new template can be based on an existing template by changing a copy of the existing template.

1. Open the Report Template Manager.
2. Select the template to copy. Click **INSERT COPY**.
3. Click **OK** in the “Operation successful” dialog.
4. Select the copy of the template and click **EDIT**.
5. Configure the template in the Graph template wizard.
6. Click **OK** at any time to exit the wizard and save the template settings.

Import a report template

Flo-Center template files can be imported with the Report Template Manager.

1. Open the Report Template Manager.
2. Select a folder to import the template into.
3. Click **IMPORT**.
4. In the Open dialog, browse to find the report template (*.vrt).
5. Select the template and click **OK**. Multiple templates can be selected.

Export a report template

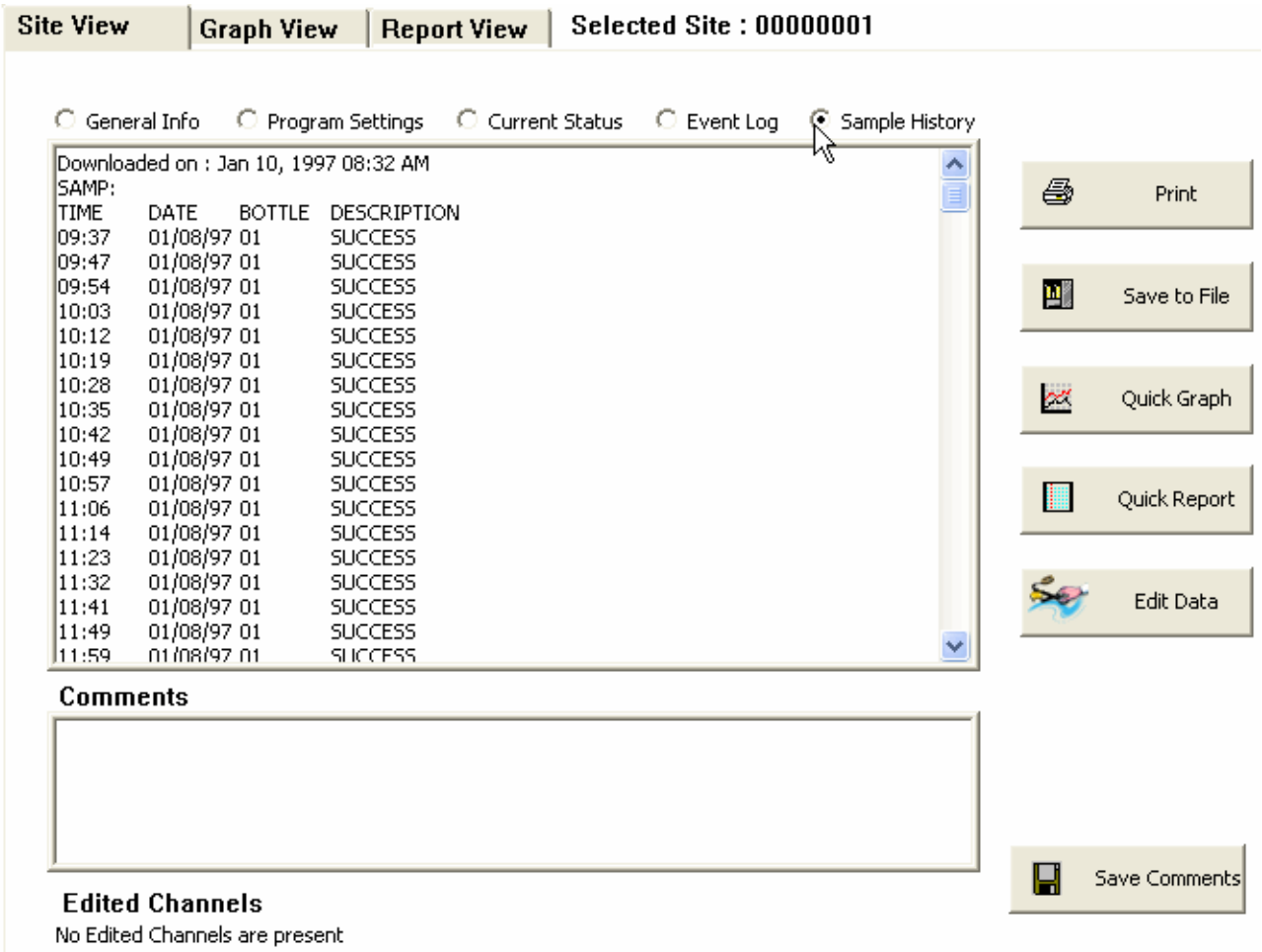
Flo-Center template files can be exported to an external directory location with the Graph Template Manager.

1. Open the Report Template Manager.
2. Select a template.
3. Click **EXPORT**.
4. In the Save As dialog, change the template storage location as needed and rename the file as needed. Click **SAVE**.

6.3 Sample history

Sample history can be viewed for site files and database sites.

1. Open Flo-Center Explorer.
2. Click a database site to select it.
3. Click Sample History.
4. Select other actions from the button list on the right side of the screen.



Section 7 Database tools and maintenance

In this section

- Database archive and restore
- Database backup and restore
- Database utility
- Database maintenance
- Import a Vision database
- Flow calculator
- Automatic data collection and scheduled operations
- Schedule report or graph generation

7.1 Database archive and restore

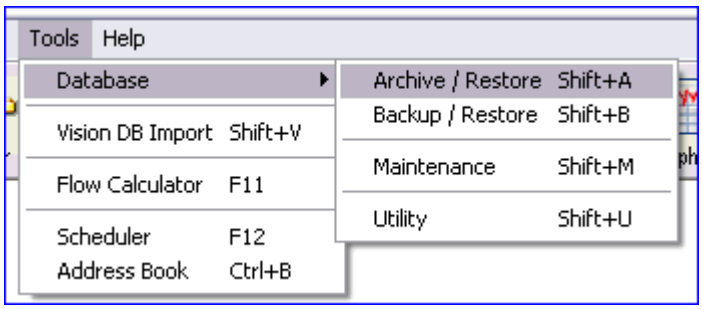
Open the Archive/Restore tool

From the Welcome Screen

- In the left navigation bar, click **TOOLS**, then click **DATABASE ARCHIVE AND RESTORE**.

From the Tools menu

- Select **TOOLS>DATABASE>ARCHIVE / RESTORE**.



From the toolbar

- Click **ARCHIVE RESTORE**.

With a keyboard shortcut

- Press **SHIFT+A**.

Archive a database

1. Open the Archive/Restore tool.
2. Select **ARCHIVE**. Click **NEXT**.
3. Select the database sites to archive. Click **NEXT**.
4. Browse to select a location to store the archive file. Click **NEXT**.
5. Click **ARCHIVE**, then **YES**.
6. Click **OK** in the “Successful Archive” dialog. Click **OK** in the Exit dialog.

Restore from archive

1. Open the Archive/Restore tool.
2. Select **RESTORE**. Click **NEXT**.
3. Browse to select an archive file to restore. Click **NEXT**.
4. Select a database site location and click **NEXT**.
5. Click **RESTORE**, then **YES**.
6. Click **OK** in the “Successful Restore” dialog. Click **CLOSE** in the Exit dialog.

7.2 Database backup and restore

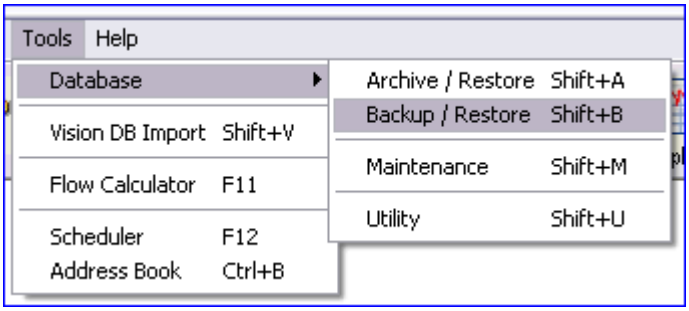
Open the Backup/Restore tool

From the Welcome Screen

- In the left navigation bar, click **TOOLS**, then click **DATABASE BACKUP AND RESTORE**.

From the Tools menu

- Select **TOOLS>DATABASE>BACKUP / RESTORE**.



From the toolbar

- Click **BACKUP RESTORE**.

With a keyboard shortcut

- Press **SHIFT+B**.

Backup a database

1. Open the Backup/Restore tool.
2. Select **BACKUP DATABASE**. Select the Integrity Check to check for corrupt data in the database. Click **BACKUP**.
3. In the Save As dialog, browse to select a location to save the backup file. Click **SAVE**.
4. Click **OK** in the “Database backup successful” dialog. Click **OK** in the Exit dialog.

Restore from backup

1. Open the Backup/Restore tool.
2. Select **RESTORE DATABASE**. Click **RESTORE**.
3. In the Open dialog, browse to select a backup file to restore. Click **OPEN**.
4. A warning dialog will show.
   - Click **YES** to overwrite all existing data in the database.
   - Click **NO** to cancel the restore operation.
5. Click **OK** in the “Database restore successful” dialog. Click **OK** in the Exit dialog.

7.3 Database utility

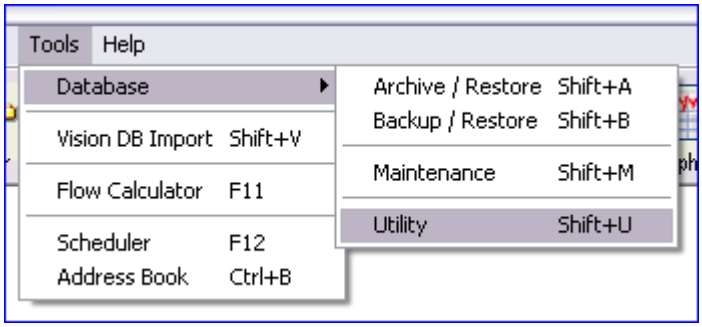
Open the database utility tool

From the Welcome Screen

- In the left navigation bar, click **TOOLS**, then click **DATABASE UTILITY**.

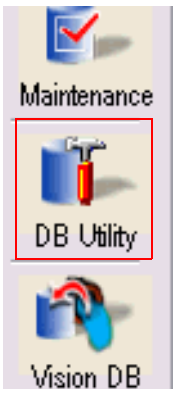
From the Tools menu

- Select **TOOLS>DATABASE>UTILITY**.



From the toolbar

- Click **DB UTILITY**.



With a keyboard shortcut

- Press **SHIFT+U**.

Create a database

1. Open the database utility tool.
2. Select **CREATE**. Enter a name for the new database.
3. Click **CREATE DATABASE**, then **YES**.
4. In the “Database created successfully” dialog:
   - Click **YES** to attach and set the new database as the default.
   - Click **NO** to cancel the operation.

Change the default Flo-Center database

1. Open the database utility tool.
2. Select **CHANGE**. Browse to select the new default database. Click **OPEN**.
3. Click **SET AS CURRENT DATABASE**, then **YES**.
4. Click **OK** in the confirmation dialog to complete the change.

7.4 Database maintenance

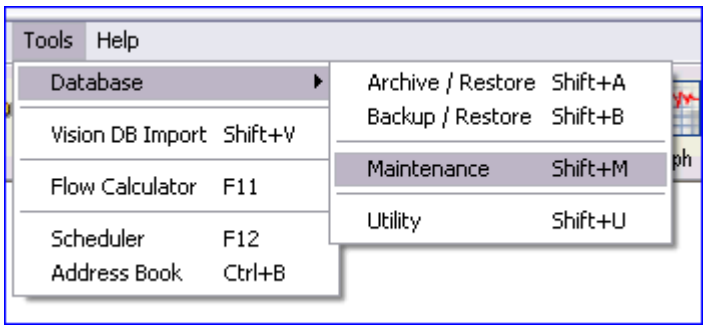
Database maintenance improves overall speed and performance of the current database.

Important Note: *Avoid performing maintenance utilities during busy times of the day.*

Open the database maintenance utility

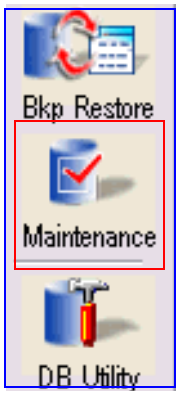
From the Tools Menu

- Select **TOOLS>DATABASE>MAINTENANCE**.



From the toolbar

- In the toolbar, click **MAINTENANCE**.



With a keyboard shortcut

- Press **SHIFT+M**.

Defragment database

The defragment utility compresses the current database and rebuilds clustered and secondary indexes of tables to improve index scanning performance.

1. Open the database maintenance utility.
2. Select the Defragment Database option and click **DEFRAGMENT**, then **YES**.

   Note: *The database will be locked during defragmentation.*

3. Click **OK** in the confirmation dialog. Click **OK** again in the exit dialog.

Database integrity check

The integrity check utility verifies table constraints, data, indexes and other structures in the current database.

1. Open the database maintenance utility.
2. Select the Database Integrity Check option and click **INTEGRITY CHECK**, then **YES**.
3. Click **OK** in the confirmation dialog. Click **OK** again in the exit dialog.

Shrink database

The shrink database utility removes unnecessary space in the current database.

1. Open the database maintenance utility.
2. Select the Shrink Database option and click **SHRINK DATABASE**, then **YES**.
3. Click **OK** in the confirmation dialog. Click **OK** again in the exit dialog.

7.5 Import a Vision database

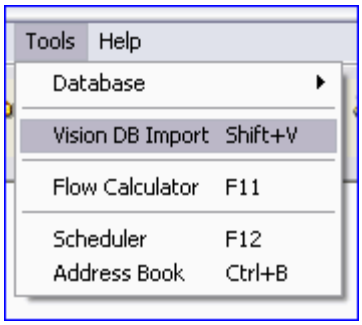
Open the Import Vision Database utility

From the Welcome screen

- In the left navigation bar click **TOOLS**, then click **IMPORT VISION DATABASE**.

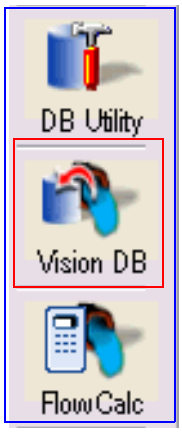
From the Tools menu

- Select **TOOLS>VISION DB IMPORT**.



From the toobar

- Click **VISION DB**.



With a keyboard shortcut

- Press **SHIFT+V**.

Import a vision database

1. Open the Import Vision Database utility.
2. Browse to select the Vision database file to import.
3. Select the Vision database sites from the list. Click **IMPORT**.

7.6 Flow calculator

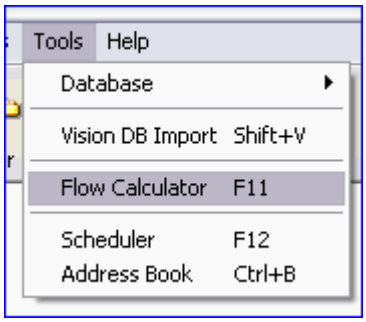
Open the flow calculator utility

From the Welcome screen

- In the left navigation bar click **TOOLS**, then click **FLOW CALCULATOR**

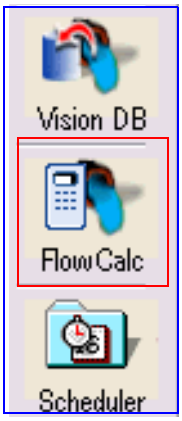
From the Tools menu

- Select **TOOLS>FLOW CALCULATOR**.



From the toobar

- Click **FLOW CALCULATOR**.



With a keyboard shortcut

- Press **F11**

Configure the flow calculator

1. Open the flow calculator utility.
2. Select the primary device and attributes.
3. Enter values for level and velocity (if applicable).
4. Select the flow rate units, then click **CALCULATE**.
5. Click **CANCEL** to exit the utility.

7.7 Automatic data collection and scheduled operations

Use the information in this section to:

Schedule a new download data task

Update a scheduled task

Delete a scheduled task

Check the status of a scheduled task

Disable all scheduled tasks

View and edit scheduled task logs

Schedule report or graph generation

Important Note: *Scheduling options will vary based on the task selected.*

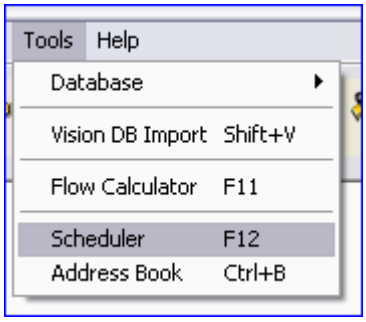
Open the scheduler utility

From the Welcome screen

- In the left navigation bar click **TOOLS**, then click **AUTOMATIC DATA COLLECTION SETUP**

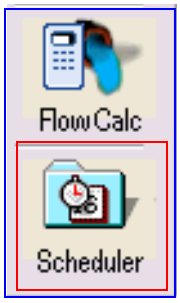
From the Tools menu

- Select **TOOLS>SCHEDULER**



From the toolbar

- Click **SCHEDULER**.



With a keyboard shortcut

- Press **F12**

7.7.1 Schedule a new download data task

1. Open the scheduler utility. Click **NEW**.
2. Select a task and click **OK**.
3. In the Scheduler start page, click **NEXT**.
4. Select the logger connection.
   - RS232—set the baud rate and port
   - Modem
5. Click **SELECT** to browse to the data destination.
6. Enable and configure graph options.
   a. Select the Print Graph option.
   b. Click **SELECT**. Highlight a graph template and click **OPEN**.
   c. Select the Create Report option.
   d. Click **SELECT**. Highlight a report template and click **OPEN**.
7. Enable the print option. Select Send report to printer, if required.
8. Enable and configure the email reporting option, if required.

a. Select the Send report through Email option.

b. Click **MESSAGE**.

c. Specify sender information, IP address, recipients and message text.

Note: *Click Address book to select recipients from the Flo-Center address book.*

d. Click **OK**.

9. Click **NEXT**.
10. Click **SCHEDULE TASK**.
    a. In the **Schedule** tab, click **NEW**.
    b. Configure frequency and start time.
    c. Click **ADVANCED** to configure the start and stop date and repetition. Click **OK**.
    d. In the **Settings** tab, set the completion options, idle time and power management.
    e. Click **APPLY**, then **OK**.
11. Click **FINISH**. In the Set Account Information dialog, enter the Windows user name and password. Click **OK**.

    Note: *Use the Windows user name and password to make sure the scheduled task is run with the correct user permissions and personalized setting.*

12. Click **CANCEL** to exit the scheduler.

7.7.2 Other scheduling operations

Update a scheduled task

1. Open the scheduler utility.
2. Highlight a scheduled task. Click **UPDATE**.
3. Configure the scheduler options as for a new task (see Schedule a new download data task).
4. Click **CANCEL** to exit the scheduler.

Delete a scheduled task

1. Open the scheduler utility.
2. Highlight a scheduled task. Click **DELETE**.
3. Click **CANCEL** to exit the scheduler.

Check the status of a scheduled task

1. Open the scheduler utility.
2. Highlight a scheduled task. Click **TASK STATUS**.
3. Click **OK** to close the status screen.
4. Click **CANCEL** to exit the scheduler.

Disable all scheduled tasks

1. Open the scheduler utility.

2. Select **DISABLE ALL TASKS**.
3. Click **CANCEL** to exit the scheduler.

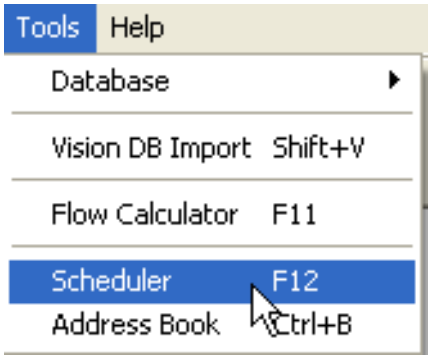
View and edit scheduled task logs

1. Open the scheduler utility.
2. Click **SET LOG EDITOR** to select the log editor program (for example, Notepad).
3. Highlight a scheduled task. Click **LOG VIEWER** to open the log for that task.
4. Click **CANCEL** to exit the scheduler.

7.7.3 Schedule report or graph generation

From the Flo-Center menu:

- Select **TOOLS > SCHEDULER**.

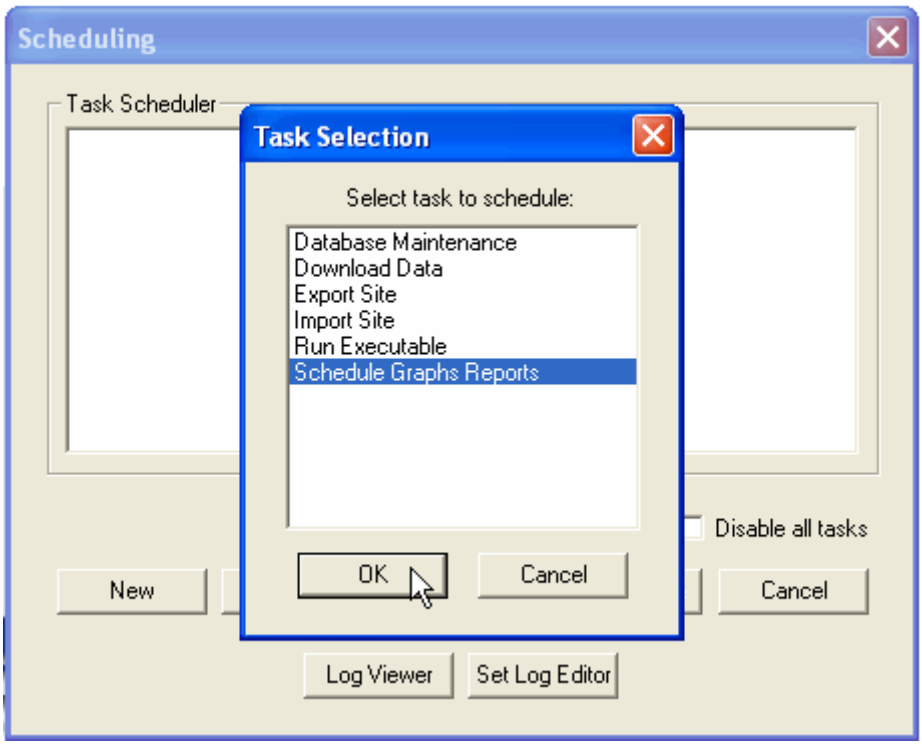


With keyboard shortcut:

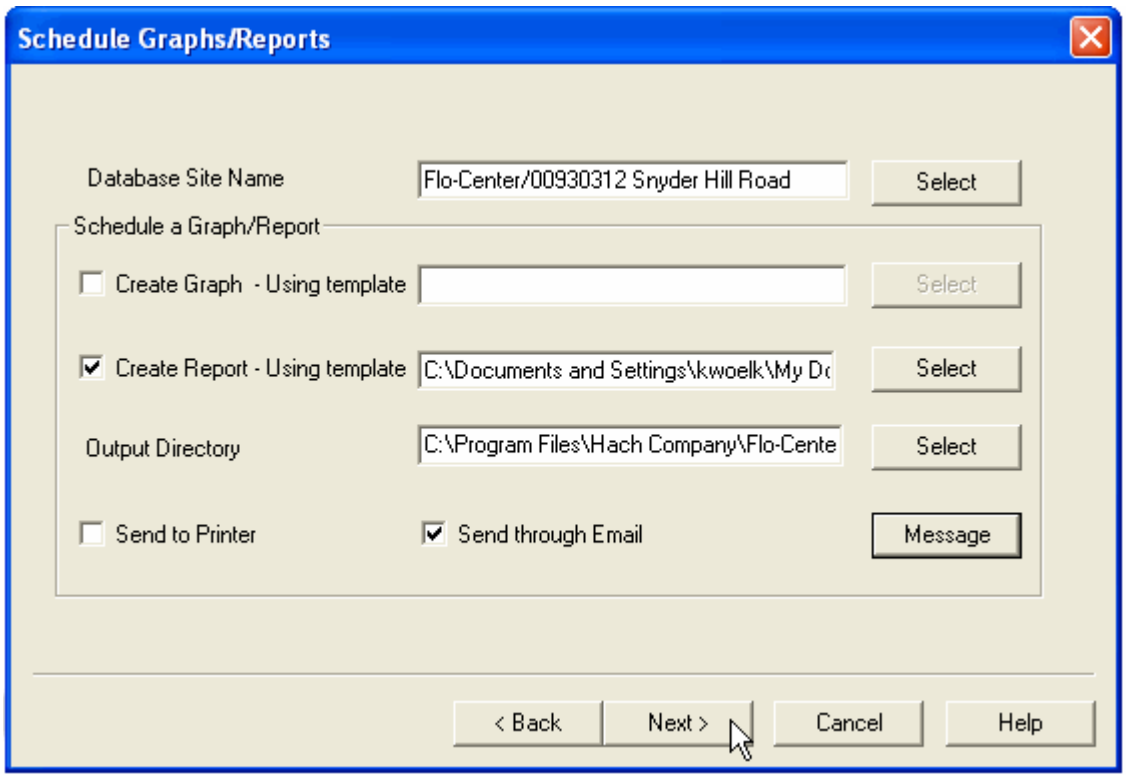
- Press F12.

From the Database Tools and Maintenance toolbar:

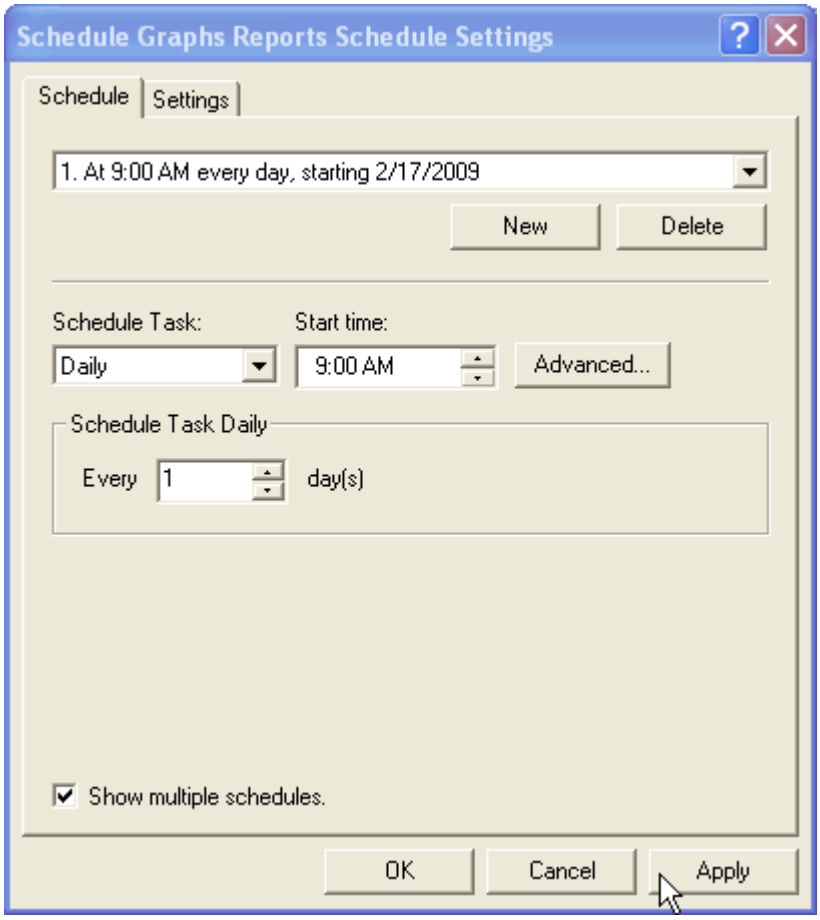
1. Select **Scheduler** and click **NEW**.
2. Select **Schedule Graphs Reports** and click **OK**.



3. In the Scheduler Start Page click **NEXT**.
4. Configure the settings and click **NEXT**.



5. Select **SCHEDULE TASK>NEW** and configure the settings in the **Schedule** and **Settings** tabs.
6. From the Flo-Center Scheduler Start Page click **NEXT**.
7. Use the **Select** button menus to populate the fields and click **NEXT**.
8. Click on **SCHEDULE TASK>NEW** and populate the required fields in the **Schedule** and **Settings** tabs.
9. Click **APPLY** and then **OK** to save the schedule.
10. Click **FINISH** to complete the report and graph scheduling process.
11.



12. Click **APPLY** and then **OK** to save the schedule configuration.
13. Click **FINISH**. In the Set Account Information dialog, enter the Windows user name and password. Click **OK**.

    Note: *Use the Windows user name and password to make sure the scheduled task is run with the correct user permissions and personalized setting.*

Frequently asked questions

How do I communicate with an instrument?

- Quick connect (RS232)
- RS232 connection to logger
- Modem connection to logger

How do I create graphs?

- Generate graphs

How do I create reports?

- Generate reports

How do I edit data?

- Edit database site data

How do I setup automatic data collection?

- Open the scheduler utility
- Schedule a new download data task

How do I manage data?

- Manage site file data
- Manage database sites

How do I create a graph template?

- Open the Graph Template Manager
- Create a new graph template
- Copy and edit a graph template
- Import a graph template

How do I create a report template?

- Open the Report Template Manager
- Create a new report template
- Copy and edit a report template
- Import a report template

How do I import data?

- Import site data

How do I export data?

- Export site data

How do I backup my database?

- Database backup and restore

How do I maintain my database?

- Open the database maintenance utility
- Defragment database
- Database integrity check
- Shrink database

Section 9 Contact information

United States:
Hach Company
P.O. Box 389
Loveland, Colorado
80539-0389 U.S.A.
Tel 800-635-4567
Fax (970) 461-3919
orders@hach.com
www.hach.com

Repair Service in the United States:
Authorization must be obtained before sending any items for repair.
HACH Company
Tel (800) 635-1230
or (970) 669-3050
Fax (970) 461-3924
techhelp@hach.com

Canada, Latin America, sub-Saharan Africa, Asia, Australia and New Zealand:
Hach Company World Headquarters,
P.O. Box 389
Loveland, Colorado,
80539-0389 U.S.A.
Tel (970) 669-3050
Fax (970) 461-3939
intl@hach.com

Europe, Middle East and Mediterranean Africa:
Hach Lange GMBH
Willstätterstraße 11
D-40549 Düsseldorf
Tel. +49 (0)2 11 52 88-320
Fax +49 (0)2 11 52 88-210
info@hach-lange.de
www.hach-lange.de

Hach Lange EU subsidiaries:

HACH LANGE LTD
Pacific Way
Salford
GB-Manchester, M50 1DL
Tel. +44 (0)161 872 14 87
Fax +44 (0)161 848 73 24
info@hach-lange.co.uk
www.hach-lange.co.uk

HACH LANGE LTD
Unit 1, Chestnut Road
Western Industrial Estate
IRL-Dublin 12
Tel. +353(0)1 46 02 5 22
Fax +353(0)1 4 50 93 37
info@hach-lange.ie
www.hach-lange.ie

DR. BRUNO LANGE GES. MBH
Industriestraße 12
A-3200 Obergrafendorf
Tel. +43 (0)27 47 74 12
Fax +43 (0)27 47 42 18
info@hach-lange.at
www.hach-lange.at

DR. LANGE NEDERLAND B.V.
Laan van Westroijen 2a
NL-4003 AZ Tiel
Tel. +31(0)344 63 11 30
Fax +31(0)344 63 11 50
info@hach-lange.nl
www.hach-lange.nl

DR. BRUNO LANGE AG
Juchstrasse 1
CH-8604 Hegnau
Tel. +41(0)44 9 45 66 10
Fax +41(0)44 9 45 66 76
info@hach-lange.ch
www.hach-lange.ch

HACH LANGE FRANCE S.A.S.
33, Rue du Ballon
F-93165 Noisy Le Grand
Tél. +33 (0)1 48 15 68 70
Fax +33 (0)1 48 15 80 00
info@hach-lange.fr
www.hach-lange.fr

HACH LANGE SA
Motstraat 54
B-2800 Mechelen
Tél. +32 (0)15 42 35 00
Fax +32 (0)15 41 61 20
info@hach-lange.be
www.hach-lange.be

HACH LANGE E.P.E.
27, Avlidos str
GR-115 27 Athens
Tel. +30 210 7777038
Fax +30 210 7777976
info@hach-lange.gr
www.hach-lange.gr

HACH LANGE APS
Åkandevej 21
DK-2700 Brønshøj
Tel. +45 36 77 29 11
Fax +45 36 77 49 11
info@hach-lange.dk
www.hach-lange.dk

HACH LANGE AB
Vinthundsvägen 159A
SE-128 62 Sköndal
Tel. +46 (0)8 7 98 05 00
Fax +46 (0)8 7 98 05 30
info@hach-lange.se
www.hach-lange.se

HACH LANGE S.R.L.
Via Riccione, 14
I-20156 Milano
Tel. +39 02 39 23 14-1
Fax +39 02 39 23 14-39
info@hach-lange.it
www.hach-lange.it

HACH LANGE S.L.U.
Edif. Arteaga Centrum
C/Larrauri, 1C- 2ª Pl.
E-48160 Derio/Vizcaya
Tel. +34 94 657 33 88
Fax +34 94 657 33 97
info@hach-lange.es
www.hach-lange.es

HACH LANGE LDA
Av. do Forte nº8
Fracção M
P-2790-072 Carnaxide
Tel. +351 214 253 420
Fax +351 214 253 429
info@hach-lange.pt
www.hach-lange.pt

HACH LANGE SP.ZO.O.
ul. Opolska 143 a
PL-52-013 Wrocław
Tel. +48 (0)71 342 10-83
Fax +48 (0)71 342 10-79
info@hach-lange.pl
www.hach-lange.pl

HACH LANGE S.R.O.
Lešanská 2a/1176
CZ-141 00 Praha 4
Tel. +420 272 12 45 45
Fax +420 272 12 45 46
info@hach-lange.cz
www.hach-lange.cz

HACH LANGE S.R.O.
Roľnícka 21
SK-831 07 Bratislava – Vajnory
Tel. +421 (0)2 4820 9091
Fax +421 (0)2 4820 9093
info@hach-lange.sk
www.hach-lange.sk

HACH LANGE KFT.
Hegyalja u. 7-13.
H-1016 Budapest
Tel. +36 (06)1 225 7783
Fax +36 (06)1 225 7784
info@hach-lange.hu
www.hach-lange.hu

HACH LANGE S.R.L.
Str. Leonida, nr. 13
Sector 2
RO-020555 Bucuresti
Tel. +40 (0) 21 201 92 43
Fax +40 (0) 21 201 92 43
info@hach-lange.ro
www.hach-lange.ro

HACH LANGE
8, Kr. Sarafov str.
BG-1164 Sofia
Tel. +359 (0)2 963 44 54
Fax +359 (0)2 866 04 47
info@hach-lange.bg
www.hach-lange.bg

HACH LANGE SU ANALİZ SİSTEMLERİ LTD.ŞTİ.
Hilal Mah. 75. Sokak
Arman Plaza No: 9/A
TR-06550 Çankaya/ANKARA
Tel. +90 (0)312 440 98 98
Fax +90 (0)312 442 11 01
bilgi@hach-lange.com.tr
www.hach-lange.com.tr

HACH LANGE D.O.O.
Fajfarjeva 15
SI-1230 Domžale
Tel. +386 (0)59 051 000
Fax +386 (0)59 051 010
info@hach-lange.si
www.hach-lange.si

HACH LANGE E.Π.E.
Αυλίδος 27
GR-115 27 Αθήνα
Τηλ. +30 210 7777038
Fax +30 210 7777976
info@hach-lange.gr
www.hach-lange.gr

Section 10 Limited Warranty

Hach Company warrants its products to the original purchaser against any defects that are due to faulty material or workmanship for a period of one year from date of shipment unless otherwise noted in the product manual.

In the event that a defect is discovered during the warranty period, Hach Company agrees that, at its option, it will repair or replace the defective product or refund the purchase price excluding original shipping and handling charges. Any product repaired or replaced under this warranty will be warranted only for the remainder of the original product warranty period.

This warranty does not apply to consumable products such as chemical reagents; or consumable components of a product, such as, but not limited to, lamps and tubing.

Contact Hach Company or your distributor to initiate warranty support. Products may not be returned without authorization from Hach Company.

Limitations

This warranty does not cover:

- Damage caused by acts of God, natural disaster, labor unrest, acts of war (declared or undeclared), terrorism, civil strife or acts of any governmental jurisdiction
- Damage caused by misuse, neglect, accident or improper application or installation
- Damage caused by any repair or attempted repair not authorized by Hach Company
- Any product not used in accordance with the instructions furnished by Hach Company
- Freight charges to return merchandise to Hach Company
- Freight charges on expedited or express shipment of warranted parts or product
- Travel fees associated with on-site warranty repair

This warranty contains the sole express warranty made by Hach Company in connection with its products. All implied warranties, including without limitation, the warranties of merchantability and fitness for a particular purpose, are expressly disclaimed.

Some states within the United States do not allow the disclaimer of implied warranties and if this is true in your state the above limitation may not apply to you. This warranty gives you specific rights, and you may also have other rights that vary from state to state.

This warranty constitutes the final, complete, and exclusive statement of warranty terms and no person is authorized to make any other warranties or representations on behalf of Hach Company.

Limitation of Remedies

The remedies of repair, replacement or refund of purchase price as stated above are the exclusive remedies for the breach of this warranty. On the basis of strict liability or under any other legal theory, in no event shall Hach Company be liable for any incidental or consequential damages of any kind for breach of warranty or negligence.

Appendix A Glossary

Flo-Center terminology

9xx/DTU

Hach/Sigma flowmeter models 900 MAX, 910, 911, 920, 930, 930T, 940, 950, 960, 970, 980. Data Transfer Unit (DTU)

Address book

Microsoft program that Flo-Center leverages to store e-mail addresses and mailing lists used in the scheduler.

Archive (database)

A means to keep the database at a manageable size. A portion of the database is selected to be backed up and removed from the active database.

Backup (database)

A copy of a data file used to restore data in the event of file corruption or destruction.

Baud rate

Data transmission rate (bits/second) between the computer and the logger. Typical baud rate is 19200.

Bubble rate

Rate adjustment for bubbler level measurement found only on some modes of the 950 flowmeter. Ideal bubble rate produces 1 bubble per second.

Channels

Logged parameters. For example: level, velocity, pH, battery voltage

Current status

When connected to an instrument, current status shows real time readings approximately every 5 seconds. When viewing data in a site file or database site, current status shows the real-time reading that is captured at the instant the instrument data is downloaded.

Data sets

Channels of data that are shown in a graph or report

Database

A collection of data, usually large, organized for rapid search and retrieval.

Database site

A flowmeter site that may contain data from one site file download or a collection of merged site file downloads.

Deadband

An area between an ultrasonic transducer face and the target in which the depth can not be read; usually 6 inches on a 75 kHz sensor or 15 inches on a 50 kHz sensor

Defragment (database)

Rebuilds clustered and secondary indexes in the Flo-Center database, improves index scanning performance and compresses the database.

Directories

Hierarchical structure for organization and storage of data files on a computer or network. In the Windows operating environment, a directory is often represented by a folder icon.

Edited

Data that has been modified

Event log

A chronological record of system messages.

Expand

Opens the selected folder or directory to reveal additional information, option is indicated by the + sign.

Expand all

A command to open all levels of a directory or folder

Explorer

A tool to view and organized database information

File naming convention

Protocol that controls file naming. Parameters such as number of characters, case, use of spaces, use of special characters and use of keywords may be used to define the naming convention.

Flow meter

The enclosure that encloses the data logger

Folder

A virtual container for organizing and storing data files on a computer or network.

Frame

An area in a graph in which data is shown. Flo-Center graphs have up to 4 frames from top to bottom in which data can be shown.

InSight

Flo-Center predecessor software, used with Hach/Sigma flowmeters since mid 1990

Integrity check (database)

A function used to search a database and report instances of corrupt table constraints, indexes, data or other structures.

Log

Chronological record of events and statistics

Logger

An instrument used to store and record data

Mapping

The structure and connection or link between objects. For example, level data can be mapped to always show in frame one of the graph.

Match

Information that identifies a site as an exact duplicate of site information already in the database. Data that is imported into the database will automatically be imported into the matching database site. Matching criterion may be the Site ID, Site Description or embedded serial number.

Merge

Combine two or more site files or database sites.

No match

Information that identifies a site is not a duplicate of information already in the database Matching criterion may be the Site ID, Site Description or embedded serial number

Orientation

Directional mounting of the sensor or probe (horizontal or vertical).

Original

Data that is not edited.

Outgoing mail server

Email server used to send and receive e-mail messages. The company or municipality IT department can provide this information.

Partial match

Some of the information that identifies a site is an exact duplicate of information already in the database. Matching criterion may be the Site ID, Site Description or embedded serial number.

Phone book

Microsoft program that Flo-Center leverages to store flowmeter (logger) modem telephone numbers.

Placeholder

A wildcard or variable that can be replaced by any element of a set. In the Flo-Center program, choose a placeholder to prompt selection of a second site to display on a graph or report.

Port

The communications receptacle for attachment of the download cable or modem.

Primary device

The method that the logger and Flo-Center will use to calculate flow. Examples include: area velocity, Palmer-Bowlus flume, V-notch weir.

Program settings

Operating instructions for the flowmeter or logger.

Rainlogger

A stand-alone device from Hach/Sigma used to record and store rain data.

Remote programming template

Settings containing operating instructions for the data logger. Settings are configured through the remote programming dialog and applied to a Sigma device or set of similar devices.

Restore (database)

Return data to a database from an archive or backup operation.

Sample History

A text log of the successes and failures of an automatic sampler routine, including time and date.

Scatter Plot

A graph of velocity versus level, or level versus velocity shown as individual data points.

Sensor

A device that measures one or more of the parameters (channels) logged in the flowmeter (logger).

Shrink (database)

Removes unnecessary space from the database.

Site

A flow monitoring or sampling location.

Site File

A file containing data from the flowmeter (logger) obtained by downloading from the logger to the Flo-Center application.

Slate

Memory mode, fixed memory

State (view/change)

950 and 900 MAX only—the flowmeter (logger) can be placed into one of several states: running, ready to start, halted.

Template

Specific settings configured for repeat use or use with multiple sites. Templates specify the content and format of graphs and reports.

User IP Address

The numeric address of a computer on the Internet.

Vision

Flo-Center predecessor software, used with Hach/Sigma flowmeters since mid 1990.

Wizard

A step-by-step program that guides users through more complex operations.

Wrap

Memory mode: first in, first out

Appendix B Flo-Center *.csv file format

Comma separated value files and Flo-Center data management

For information on importing *.csv file data into Flo-Center, see Import external data into a database from a *.csv file.

For information on exporting channel data as a *.csv file, see Export channel data to a *.csv file.

What is a *.csv file?

The *.csv (comma separated values) file format is used to exchange data between different applications; for example, between a database and a spreadsheet. The *.csv file format is often used by the Microsoft Excel office application.

Standard *.csv format

The standard *.csv format follows the following rules:

- Each record is on one line. The line separator may be a line feed character, LF (0x0A) or carriage return/line feed characters CRLF (0x0D0A). A line separator may also be embedded in the data, making a record more than one line but still acceptable.
- Each record contains one or more fields. The fields are separated by commas.
- Leading and trailing white space is ignored. White space can be preserved by delimiting a field with double-quotes.

Format of *.csv file for import into Flo-Center

For any *.csv data file to be imported into Flo-Center database site, it should follow the *.csv file format shown in Table 3.

Table 3 *.csv file opened in Microsoft Notepad

Line1	1 8 1997 9 0 0				
Line 2					
Line 3	TimeStamp,,	PROC TEMP-C,	PH-pH,	LEVEL1-in.,	FLOW1-afd
Line 4	1997-01-08 09:38:00,,	76.890236,	7.086062,	6.182496,	.984000
Line 5	1997-01-08 09:39:00,,	77.129166,	7.367250,	6.434088,	1.984000
Line...	1997-01-08 09:40:00,,	77.243820,	7.423968,	6.388620,	1.984000
Line...	1997-01-08 09:41:00,,	77.310730,	7.392159,	6.303612,	1.984000
Line...	1997-01-08 09:42:00,,	77.332382,	7.356227,	6.249960,	1.984000
Line...	1997-01-08 09:43:00,,	77.329475,	7.331182,	6.295897,	1.984000
Line...	1997-01-08 09:44:00,,	77.460121,	7.487556,	6.345456,	1.984000

The above data is exported from a Flo-Center database site to a *.csv file that contains four channels: "PROC TEMP", "PH", "LEVEL1" and "FLOW1".

- Line 1 in the table shows the starting date and time of the data (Optional).
- Line 2 in the table shows an empty space (Optional).
- Line 3 shows the channel names (not labels) and units separated by "-".
- The channel names and units of the column headers should be same as in Flo-Center. (Refer: Channel Names and Units Table 3 at the end of this document).

- The first word in Line 3 is "TimeStamp" which is the mandatory header for the Date/Time of the logged data. The format of the "TimeStamp" is 'YYYY-MM-DD HH:MM:SS'.
- The logged data starts on Line 4.

Table 4 shows the data from Table 3 when opened in the Microsoft Excel spreadsheet application.

Table 4 *.csv exported file opened in Microsoft Excel

1 8 1997 9 0 0					
TimeStamp		**PROC TEMP-C**	**PH-pH**	**LEVEL1-in.**	**FLOW1-afd**
1/8/1997 9:38		76.89024	7.086062	6.182496	1.984
1/8/1997 9:39		77.12917	7.36725	6.434088	1.984
1/8/1997 9:40		77.24382	7.423968	6.38862	1.984
1/8/1997 9:41		77.31073	7.392159	6.303612	1.984
1/8/1997 9:42		77.33238	7.356227	6.24996	1.984
1/8/1997 9:43		77.32948	7.331182	6.295897	1.984
1/8/1997 9:44		77.46012	7.487556	6.345456	1.984

Flo-Center channel names

Table 5 shows a list of channel names that can be included in *.csv output.

Table 5 Flo-Center channel names

Channel name	
CHNL_NAME	FLOW4_EDIT
BAT_VOLT	FLOW5
BAT_VOLT_EDIT	FLOW5_EDIT
PROC_TEMP	FLOW6
PROC_TEMP_EDIT	FLOW6_EDIT
RAIN	CAB_TEMP
RAIN_EDIT	CAB_TEMP_EDIT
PH	DO
PH_EDIT	DO_EDIT
LEVEL1	ORP
LEVEL1_EDIT	ORP_EDIT
LEVEL2	DO_TEMP
LEVEL2_EDIT	DO_TEMP_EDIT
LEVEL3	COND
LEVEL3_EDIT	COND_EDIT
INPUT1	COND_TEMP
INPUT1_EDIT	COND_TEMP_EDIT
INPUT2	VEL1
INPUT2_EDIT	VEL1_EDIT
INPUT3	VEL2
INPUT3_EDIT	VEL2_EDIT
INPUT4	VEL3
INPUT4_EDIT	VEL3_EDIT
INPUT5	SIG_STRENGTH1
INPUT5_EDIT	SIG_STRENGTH1_EDIT
INPUT6	SIG_STRENGTH2
INPUT6_EDIT	SIG_STRENGTH2_EDIT
INPUT7	SIG_STRENGTH3
INPUT7_EDIT	SIG_STRENGTH3_EDIT
FLOW1	SIG_QUALITY1
FLOW1_EDIT	SIG_QUALITY1_EDIT
FLOW2	SIG_QUALITY2
FLOW2_EDIT	SIG_QUALITY2_EDIT
FLOW3	SIG_QUALITY3
FLOW3_EDIT	SIG_QUALITY3_EDIT
FLOW4	

Flo-Center units of measure

Table 6 is a comprehensive list of units that can assigned in Flo-Center for export to a *.csv file.

Table 6 Units of measure

Unit	
ml (milliliters)	gph (gallons per hour)
af (acre feet)	lps (liters per second)
cf (cubic feet)	lpm (liters per minute)
gal (gallons)	lph (liters per hour)
ltr (liters)	mgd (million gallons)
m3 (cubic meters)	pH
in. (inches)	mV (millivolts)
cm (centimeters)	ppm (parts per million)
ft (feet)	ppb (parts per billion)
m (meters)	mg/L (milligrams per liter)
cm2 (square centimeter)	sat (saturation)
ft2 (square feet)	mS (millisiemens)
in2 (square inches)	uS (microsiemens)
m2 (square meters)	g/kg (grams per kilo)
afd (acre feet per day)	%/C (percent per degree Celsius)
cfs (cubic feet per second)	C (degrees Celsius)
cfm (cubic feet per minute)	F (degrees Fahrenheit)
cfh (cubic feet per hour)	mils (1/1000 inch)
cfd (cubic feet per day)	volts
cms (cubic meters per second)	fps (feet per second)
cmm (cubic meters per minute)	m/s (meters per second)
cmh (cubic meters per hour)	%O2 (percent Oxygen)
cmd (cubic meters per day)	VDC (volts DC)
gps (gallons per second)	mA (milliamps)
gpm (gallons per minute)	

A

advanced options 67

C

change the default Flo-Center database 58
channel names 83
create a new database 58
csv
  definition 81
  Flo-Center format 81
  standard format 81

D

database
  add a new database 58
  change the default database 58
  defragment 59
  integrity check 60
  shrink database 60
database flow data
  configure a flow 36
  create new flows 36
  delete a flow 36
database site data 35
  edit data
    data edit wizard 35
    Flo-Center explorer 35
database tools
  archive/restore tool 55
    archive a database 56
    keyboard shortcut 55
    restore from archive 56
    toolbar button 55
  automatic data collection
    check task status 64
    delete a task 64
    disable all tasks 64
    keyboard shortcut 63
    schedule a new task 63
    toolbar button 63
    update a scheduled task 64
    view and edit task logs 64
  backup/restore tool 56
    backup a database 57
    keyboard shortcut 57
    restore from backup 57
    toolbar button 57
  database maintenance tool 59
    defragment database 59
    integrity check 60
    keyboard shortcut 59
    shrink database 60
    toolbar button 59
  database utility tool 57
    change the default database 58
    create a database 58
    keyboard shortcut 58
    toolbar button 58
  flow calculator tool 61
    configure the flow calculator 62
    keyboard shortcut 62
    toolbar button 62
  import a Vision database 60, 61
    keyboard shortcuts 61

E

export wizard
  keyboard shortcut 44
  open 44
  to *.csv 45
  toolbar button 44

F

Flo-Center explorer 30
  add a new database site 31
  keyboard shortcut 31
  modify a database site 33
  organize database sites 32
  rename a database site 34
  site information
    comments 31
    current status 31
    program settings 31
    sample history 31
    scatter plots 31
  toolbar button 31
flow calculator 61

G

generate graphs 36
  drag and drop 36
  manually
    blank graph 37
    Flo-Center explorer 36
    graph wizard 37
  scheduled 64
generate reports 38
  drag and drop 39
  manually
    Flo-Center explorer 39
    reports wizard 40
graphs
  template manager 49
    copy/edit a template 50
    create a new template 49
    export a template 50
    import a template 50
    keyboard shortcut 49
    toolbar buttons 49

I

import wizard
- import external data 41, 42
- keyboard shortcuts 41
- open 41
- toolbar button 41

K

keyboard shortcuts
- archive/restore tool 55
- automatic data collection 63
- backup/restore tool 57
- database maintenance tool 59
- database utility tool 58
- export wizard 44
- Flo-Center explorer 31
- flow calculator 62
- graph template manager 49
- import a Vision database 61
- import wizard 41
- modem 15
- normal screen 7
- quick connect RS232 ..... 13, 14
- site file explorer 27
- toolbar dialog 10
- welcome screen 7

M

modem connect dialog 15

modem connection
- add a new location 18
- change modems 17
- configure a modem 17
- dialing location 17
- dialing options 16
- edit a location 17
- keyboard shortcut 15
- toolbar button 15

P

phone book
- add new numbers 17
- modem dialing options 16

Q

quick connect
- key board shortcut 13, 14
- left navigation bar 13, 14, 15
- toolbar button 13, 14

R

reports
- scheduled 64
- template manager 51
  - configure a template 52
  - copy/edit a template 52
  - create a new template 51
  - export a template 53
  - import a template 52

S

site file explorer
- add site files to the database 28, 29
- delete site file data 28
- keyboard shortcuts 27
- toolbar button 27
- view data 27

site files, adding 28, 29

site files, deleting 28

status bar
- show or hide 10

T

template manager
- graph 49
  - configuration options 50
  - copy/edit a template 50
  - create a new template 49
  - export a template 50
  - import a template 50
- report 51
  - configure a template 52
  - copy/edit a template 52
  - create a new template 51
  - export a template 53
  - import a template 52

toolbar buttons
- archive/restore tool 55
- automatic data collection 63
- backup/restore tool 57
- database maintenance tool 59
- database utility tool 58
- export wizard 44
- Flo-Center explorer 31
- flow calculator 62
- graph template manager 49
- import button 41
- modem connection 15
- quick connect 13, 14
- site files 27

U

units of measure 84

V

view data
- site file explorer 27

views

graphical interface 6
welcome screen 7
Vision database
import an existing database 60

W

Warranty 73
welcome screen
left navigation
archive/restore tool 55
automatic data collection 62
backup/restore tool 56
database utility tool 57
export wizard 44
Flo-Center explorer 30
flow calculator tool 61
graph template manager 49
import a Vision database 60
import wizard 41
product overview 8
quick connect RS232 .....13, 14, 15
site file explorer 27